

# FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 412. (No. 46, Vol. VIII.)

NOVEMBER 16, 1916.

[Weekly, Price 1d.  
Post Free, 1½d.]

## Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.

Telegrams: Truditur, Westrand, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free.

United Kingdom .. 6s. 6d. Abroad .. .. 11s. 6d.

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### TO OUR READERS.

#### The Supply of "FLIGHT." Important Notice.

Order "FLIGHT" to be either delivered or reserved for you regularly.

As the demand for "FLIGHT" is so great each week, it is of the utmost importance that readers should place their orders *firmly* for copies of "FLIGHT" at the bookstalls, their newsagents, or direct from the publishers, at 44, St. Martin's Lane, W.C., if they wish to secure a copy every week and avoid disappointment. The stringent Government restrictions in regard to the supply of printing paper necessitates this precaution in order that only actual numbers required are printed, and all wastage by unsold copies may thereby be reduced to a minimum, if not eliminated.

THE PUBLISHERS.

### EDITORIAL COMMENT.



ONE cardinal result of the war was foreshadowed the other night by Sir Joseph Ward, the High Commissioner for New Zealand, at a meeting of the Imperial Air Fleet Committee. Speaking on the problem of the air generally, he said that while, undoubtedly, a tremendous advance had been made in our air work, we were still only on the threshold of this field of defence. As much would have to be done for the defence of the British Isles in the air as has been done on the sea. In all human probability aerial

#### An Imperial Air Fleet.

work would become a more effective branch of the fighting service—both as a means of destruction and protection—than either the Navy or Army. Other countries were sure to develop it, and we could not afford to stop organising and expanding a service which the war had proved to be an indispensable necessity. Every part of the Empire must do its part in the task of aerial defence. In the matter of defence, he was more than ever impressed with the necessity for responsible men in this country visiting the Overseas to acquire a first-hand idea of defence needs.

We are in absolute agreement with the views expressed by the distinguished speaker. In one respect we go farther, since we would eliminate the qualification he made as to the future importance of the Air Service, and say that with absolute certainty it will become a more important branch of the machinery of offence and defence than either Army or Navy. The prophet has no honour in his own country, we know, and in spite of the accuracy with which those who had either knowledge or imagination predicted the part that aircraft would play in the present war, there are doubtless many who would join issue on this question of the future of aerial war. Equally is it the case that some of those who would thus contest the accuracy of the forecast are those who were responsible for our state of unpreparedness when we entered the present struggle, and who, presumably, will have a good deal to say on matters affecting policy after the war. That is, unless the nation decides—as it may—to make a clean sweep of the ostrich-like "statesmen" who refused to heed the writing that was plain enough for them to have read.

It is the more welcome, therefore, to know that the Dominions beyond the seas are alive to the future,

and, what is even more to the good, are determined to have the say in Imperial policy that, Heaven knows, they have earned. The future of the Empire is literally in the air. We do not expect this to meet with instant recognition from the constituted authorities of the Motherland. It would be flying in the face of all the lessons of the past to expect it. It is here that the virile common-sense of the younger nations of the Empire will help forward the ideal of air supremacy and assist in forcing the policy of the Imperial Government. If they accept, as we believe they will, the principle that to preserve our Empire intact we must adopt the true principles of a real Imperial defence, a necessary part of which is the proposition of absolute aerial supremacy secured through an Imperial Air Fleet, we are confident that with the assistance of the very strong volume of opinion that is growing up in Great Britain, the end will be achieved.

## Prepare for 1917!

Writing from the Somme front, Mr. Ashmead-Bartlett says that:—"What we want now is patience, more armies for the spring, more guns and still more ammunition. The enemy hopes to save himself by the substitution of a higher percentage of steel and high explosives for the human flesh which he can no longer replace. If he does this, we must do the same, and not only maintain but increase the superiority in guns and material which we have enjoyed this summer and autumn on the Somme. Then, next time, with the enormous numerical superiority in men we shall possess, with new armies that have not been exhausted by a winter in the trenches, we ought to obtain that final victory for which all so ardently long."

That is the end for which the Empire must strive and strive again, so that the advent of the spring of 1917 may find us with an overwhelming superiority in everything that makes for success in war. More men, more guns, more ammunition and more air squadrons to do their part in ridding the soil of the Allied countries from the foul plague that has infested them for more than two years. And not only more aircraft to maintain our present supremacy, but more aircraft to make that supremacy absolute and unchallengeable. That it will be challenged we are assured. The enemy will strain every manufacturing resource during the coming winter to regain in the spring what has passed out of his hand, we hope and believe for all time. But there must be no slackening of effort on our own part. On the contrary, now more than ever is the time for us to concentrate our fullest efforts on the problem of aerial supremacy, not only to the end of accelerating production, but on improvement and yet further improvement in material. The Germans, we are told, are busy on new types of machines which are the result of the experience gained in recent aerial war. It behoves us, therefore, not to complacently assume that because we are superior for the moment there remains nothing to be done to improve our material. We do not suggest that we are doing nothing to advance, but we have had one mild surprise sprung on us in the shape of the much-engined Fokker. True, the effect did not last long, and we were able to counter it very effectually, but the fact remains

that for some period of time our own battle-planes were outclassed by those of the enemy. That must not happen again. We have gained ascendancy in the air and we must keep it, or the nation will be satisfied with nothing less than the heads of those who are responsible.

The note of warning we have sounded is not uncalled for in the light of the continuous insistence of the war correspondents on the ascendancy of our airmen over the enemy. One communication that lies before us begins:—"In aviation the Boscches have ceased to exist. That is the unanimous verdict of military experts." We should be inclined to call it pernicious piffle. In the same issue of the journal in which this was printed we find a long descriptive account of the air battle of the 9th, in which 30 of our machines were engaged by a German air force estimated at from 36 to 40 machines! Farther on we find it stated that the German airmen are straining every nerve to recover some of their lost prestige, and are copying our tactics by even flying low and using their machine-guns on troops and convoys. Again, we are told that there has been shown a tendency to greater enterprise in bombing railway centres and ammunition stores in rear of the Allied lines. Yet we are asked to believe that in the air "the Bosche has ceased to exist." On the contrary, we believe the Bosche is very much alive. He has been scotched by our own aerial activities, but he certainly has not been killed. We do not like to see so much about Allied air ascendancy, when it strikes the wrong note like this. Naturally, we regard it as one of the portents of ultimate victory that we have attained to the strong position in the air that we have, but we deprecate strongly the sort of writing that is calculated to lull us into a false sense of security. Depend upon it, as we have already said, the enemy will make—is making—tremendous efforts to regain his lost command of the air. We shall not retain it by talking as though there were no further need for effort. That way lies disaster.

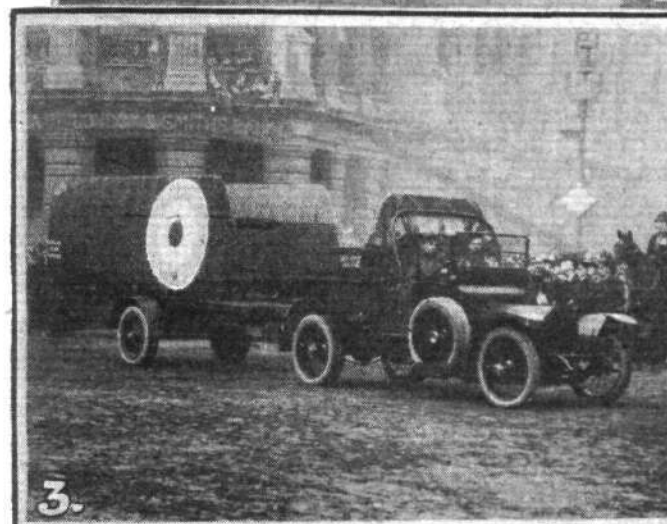
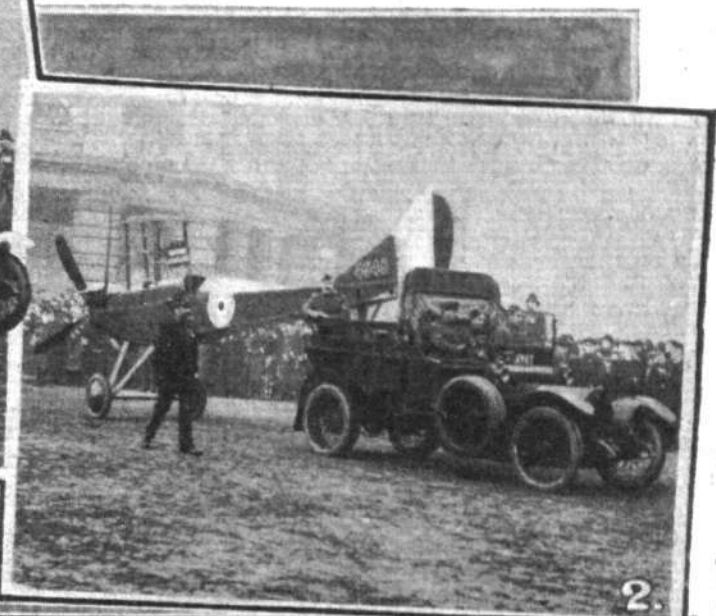
## A Real Battle in the Clouds.

It is a thrilling story, that of the battle in the clouds which was told in the newspapers on Monday. Seventy machines, more or less, took part in it, and the story reads more like a page from Wells' "War in the Air" than the sober record of an actual happening. The *Times*' account of the battle, which is a graphic picture of this historical air-fight, we reprint in this issue; an epic story indeed, with a moral all its own. So long as we equip our magnificent flying service with material that is equal to, or better than, that of the enemy, and in sufficient quantity, so long will the story of the war in the air be written the same.

## The Insurance Ramp.

Rather more than a year ago—in our issue of October 8th, 1915, to be exact—we discussed the position of landlord and tenant in relation to the insurance of buildings against risk from enemy aircraft. The particular question at issue was, with whom rests the liability to insure against damage done to buildings as a result of air raids? The crux of the whole





Some snaps of the Lord Mayor's Procession, placed in rotation as they appeared.—1. *Fuselage* of captured German L.V.G. 2. *Fuselage* of British B.E. 3. Port-side wings of British B.E. 4. Wing of a captured German aeroplane. 5. Military firemen, who help to look after Zepp. damage. 6. A captured German field gun.

question, is contained in the point raised by a quotation we then gave, and which is as follows:—

"It seems desirable that lessees should be warned against relying for protection against damage upon insurances effected in the name only of the landlord.

"The popular, and perhaps the common-sense, view is that it is the house that is insured by the policy; but in law a policy is simply a contract of indemnity, i.e., to indemnify the person against loss. If, therefore, the lessee's covenants in the lease cover the making good of damage caused by aircraft, then it appears that in law the ultimate burden of making good the damage would fall on the lessee, in spite of the policy.

"Lessees, therefore, at any rate where the lease contains wide repairing covenants, should see either that any policy effected by the landlord is placed in the name of the lessee as well as that of the landlord, or should effect a separate insurance in their own names."

The whole matter has been raised again by an action heard in the Court of Chancery last week. The facts of the case were briefly these. A Miss Roberts, having a 60 years' lease of certain factory premises, sublet them to a second party, who in turn assigned them to a third. Serious damage was done to the premises by an incendiary bomb dropped from an enemy airship. In her sublease, Miss Roberts undertook to insure the premises against damage by fire, and if such damage occurred to pay for repairs. But she denied that she was responsible for damage by enemy attack. She had insured against ordinary fire risks with the Sun Insurance, but the policy expressly barred loss caused by an enemy. The society therefore declined to pay. Meanwhile, the freeholder had insured against aircraft risks with Lloyd's, but Lloyd's argued that their policy was only one of indemnity, and if the sub-lessees could get reinstatement under their lease they would have nothing to pay. The purpose of the action was to secure a declaration that the sub-lessees were under no liability to repair, and to recover damages from Miss Roberts for breach of covenant in not remedying the loss caused by the fire.

Mr. Justice Sargent, who tried the case, made some trenchant comments on the action of Lloyd's during the hearing. He remarked that, while taking the premium on the whole value, they practically said that they were insuring the ground landlord's interest only. If that was the result, he said, the sooner there was some legislation on the subject the better.

His lordship, giving judgment, declared that the liability fell as between the parties to the action upon Miss Roberts, and not upon the plaintiffs. He added that the sub-lessees had insured the contents of the factory and had recovered payment in that respect.

Lloyd's paid out under their policy to the free-



#### National Aircraft Insurance.

SINCE our editorial on the above subject was in type further light is thrown upon the attitude taken up by the Government under similar conditions by Mr. Leonard Hill, of Margate, in a communication to the Press. He writes:—

"In reference to Mr. Justice Sargent's remarks in the case of *Enlayde (Ltd.) v. Roberts*, in, at any rate, one case which has come under my notice the Government took the same point as was stated to have been taken by Lloyd's in this case, namely, that its contract was a contract for indemnity only. The Government, however, went further than Lloyd's, and for some time took up the position that it would pay nothing to the freeholder, who had insured on the full value, until the freeholder had exhausted her rights under the

holders, but made what his lordship thought the public would believe was an unexpected claim that, having made that payment, they could in the name of the freeholders recover the amount paid from the lessee, Miss Roberts. The underwriters were bringing an action against Miss Roberts accordingly.

Since it was discovered that the lessee and sub-lessee might be liable to the freeholders, they had made application to the Government for compensation. The reply was a non-possimus, as the committee dealing with such claims had been dissolved. His lordship regretted that, because persons in these circumstances were entirely within the spirit of the principle of compensation which the Government adopted at a time when damage of this kind had not been appreciated.

It was not necessarily sufficient that one person interested in a building should insure it against aircraft, unless it was quite clear that that person was the one upon whom the ultimate liability rested.

In his comments on the stand taken by Lloyd's, the judge might have gone a great deal farther than he did. It is nothing short of a public scandal that members of a corporation like this should be in a position to take people's money and then shelter behind a legal quibble when the question of discharging its liability arises. Mr. Justice Sargent was perfectly right when he said that the need for legislation is clearly indicated.

We have never departed from the view we expressed nearly two years ago, when the question of compensation for damage in air raids first began to be discussed, that such compensation should primarily be a national liability, or failing that a national asset. We still hold the same view, but apparently the Government has not seen its way clear to adopt the national liability suggestion in spite of latter day agitation to that end. But it is clear that something must be done to remove the anomalies disclosed by the case under discussion. As we said a year ago, an excellent and a very simple way out would be to pass a short Act dividing up the liability between the landlord and tenant in proper ratio, with the onus upon the landlord to see that adequate insurance is effected by the tenant, with the right to himself insure in the event of failure to cover on the part of the tenant within some short period of the enactment, and to recover the tenant's moiety by distraint if necessary.

If this course were adopted, everyone would at least know where he stood, and there would be an end to the present distressing state of injustice, which in the meantime directs moneys into channels into which they certainly should not morally go, whatever may be the legal aspect.

covenant by a lessee to repair. The Government held out for a considerable time, although I believe it paid eventually. While I am writing I may mention two other points in which the Government treatment of the insured has been markedly unfair, namely (A) where the insured transferred his interest in the property a month after taking out a Government policy, and the Government objected to allow an assignment of the policy on the ground that it was personal to the insured, and (B) where the policy was—as ninety-nine out of every hundred of these policies are—on the property covered by an existing fire insurance policy, and the Government refused to pay for damage done to garden walls on the ground that these walls were not included in the insurance against fire."



# The British Air Service

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

## Royal Naval Air Service.

*Admiralty, November 7th.*

Temp. Sub-Lieuts. (R.N.V.R.).—H. Eves and E. E. W. Butt, promoted to rank of Temp. Lieut. (R.N.V.R.), both with seniority Nov. 4th.; also A. E. Sole, with seniority Nov. 6th.

F. H. Stringer and B. E. Harrison, granted temp. commissions as Sub-Lieuts. (R.N.V.R.), and appointed to "President," additional, for R.N.A.S., date Nov. 4th.

H. B. Maund, entered as Prob. Flight Officer for temp. service, and appointed to "President," additional, for R.N.A.S., date Nov. 6th.

A. C. Burt and G. R. Marshall entered as Prob. Flight Sub-Lieuts. for temp. service, and appointed to "President," additional, for R.N.A.S., date Sept. 26th and Oct. 2nd respectively.

Louis J. Nobbs entered as Temp. Warrant Officer, sec. grade, and appointed to "President," additional, for R.N.A.S. date Nov. 6th.

*Admiralty, November 8th.*

Temp. Sub-Lieuts. R.N.V.R., G. Hazelton and A. P. Reed promoted to Temp. Lieuts., R.N.V.R., with seniority Nov. 5th.

The undermentioned have been entered as Prob. Flight Officers for temp. service, and appointed to the "President," additional, for R.N.A.S., all to date Nov. 12th: A. C. Gilner, J. L. Langton, D. E. Penney, J. M. McCleerey, and T. W. G. Thomson.

*Admiralty, November 9th.*

C. H. Swann and S. J. Green granted temp. commissions as Sub-Lieuts., R.N.V.R., seniority Nov. 8th.

*Admiralty, November 11th.*

The following have been granted temp. commissions as Sub-Lieuts., R.N.V.R., seniority as mentioned: I. H. McClure, E. A. Panterose, and W. E. Reetes, Nov. 11th; J. W. Morley, Nov. 26th.

The following have been entered as Prob. Flight Officers for temp. service, with seniority as stated: S. H. H. Ash, Oct. 11th; H. R. Dyke and L. H. G. Gillespie, Nov. 19th.

*Admiralty, November 13th.*

The following have been entered at Prob. Flight Officers, for temp. service, to date as stated: D. H. F. McMaster, Sept. 3rd; P. C. L. Young, C. M. Attlee, R. G. Jenkin, T. F. Gillespie, S. Quayle, H. L. Nelson, W. B. W. Clarke and E. E. Butler, Nov. 19th.

## Royal Flying Corps (Military Wing).

*London Gazette Supplement, November 4th.*

**Equipment Officers, 3rd Class.**—(Substituted for the notifications in the *Gazette* of Nov. 1st): 2nd Lieut. A. C. Blackmore, Spec. Res., July 12th. Lieut. O. I. Preston, Notts. and Derby R. (T.F.), from a Flying Officer (Ob.); July 17th. Temp. 2nd Lieut. J. M. Macaulay, Gen. List; Aug. 1st.

**Supplementary to Regular Corps.**—The undermentioned 2nd Lieuts. (on prob.) are confirmed in their rank: H. B. Begg, M. R. Helliwell, J. Paradise. The undermentioned to be 2nd Lieuts. (on prob.): Oct. 6th. Alexander Lorenza Waldeman Reginald Henry-Waetjen, Jared Douglas Eric Troop. The appointment of 2nd Lieut. (on prob.) Henry Robert Williamson, notified in the *Gazette* of Oct. 17th, is cancelled.

*London Gazette Supplement, November 6th.*

**Special Appointments (graded as Park Commanders).**—From Equipment Officers:—Oct. 13th: Capt. (Temp. Major) J. T. C. Moore-Brabazon, S.R., and to retain his temp. rank whilst so employed; Capt. (Temp. Major) T. V. Smith, M.C., S.R., and to retain his temp. rank whilst so employed; Lieut. (Temp. Capt.) S. A. Currin, S.R., and to be Temp. Major whilst so employed.

**Flight Commanders.**—From Flying Officers, and to be Temp. Capt. whilst so employed: 2nd Lieut. H. Spanner, S.R.; Oct. 20th. 2nd Lieut. J. C. McMillan, R. Sc. Fus.; Oct. 22nd.

**Flying Officers.**—2nd Lieut. A. O. B. Traill, W. Rid. R., and to be secd.; Oct. 11th. 2nd Lieut. D. A. R. Chapman, Gen. List; Oct. 15th: 2nd Lieut. M. W. Turner Essex and Suff. R.G.A. (T.F.); 2nd Lieut. (Temp. Lieut.) G. T. Willcox, High. L.I. (T.F.); Temp. 2nd Lieut. H. W. H. Marshall, W. York. R., and to be transfd. to Gen. List. 2nd Lieut. A. C. S. Irwin, R. Ir. Rif., and to be secd.; Oct. 16th. 2nd Lieut. (on prob.) G. S. Deane, S.R.; Oct. 18th. Oct. 19th: Temp. 2nd Lieut. H. G. C. Bowden, Gen. List; 2nd Lieut. S. Willmetts, S.R.; Temp. Lieut. E. F. Wessel, R. Fus., and to be transfd. to Gen. List; 2nd Lieut. P. L. Plant, R. Ir. Fus., S.R., and to be secd.; 2nd Lieut. R. B. Bourne, S.R.; Temp. 2nd Lieut. C. A. Bourne, Gen. List, from a Flying Officer (Ob.), with seniority from Oct. 25th, 1915; Temp. 2nd Lieut. C. V. de B. Rogers, Gen. List; 2nd Lieut. R. W. Reid, S.R. Oct. 20th: 2nd Lieut. (Temp. Lieut.) P. W. Murray, Duhr. L.I. (T.F.); Temp. Lieut. J. Parry, A.S.C., and to be transfd. to Gen. List; 2nd Lieut. (Temp. Lieut.) A. J. C. E. Phillippo, A.S.C., and to be secd.; 2nd Lieut. A. V. H. Gompertz, S.R.; Temp. Lieut. F. H. Turner, M.C., Glouc. R., and to be transfd. to Gen. List. Oct. 21st: 2nd Lieut. C. E. de Berigny, Spec. R.; Lieut. J. M. J. C. J. I. Rock, Bedf. R. (T.F.); 2nd Lieut. A. P. Hartley, Ches. R. (T.F.); 2nd Lieut. S. S. B. Purves, Sco. Horse Yeo. (T.F.); 2nd Lieut. V. H. Adams, S.R. The surname of 2nd Lieut. (on prob.) A. R. M. Scrase-Dickins is as now described, and not as in the *Gazette* of Oct. 23rd.

**Flying Officer (Observer).**—Temp. 2nd Lieut. G. N. Dennis, E. York. R.; Oct. 22nd.

**Balloon Officer.**—2nd Lieut. J. Baxter, Gen. List; Oct. 12th. **Equipment Officers, 2nd Class.**—From Asst. Equipment Officers, and to be Temp. Lieuts. whilst so employed: 2nd Lieut. J. D. Troup, S.R.; Sept. 26th. 2nd Lieut. J. C. Forsyth, S.R.; Oct. 17th.

**Special Appointment (graded as an Equipment Officer, 2nd Class).**—Temp. 2nd Lieut. T. F. G. Strubell, Gen. List, from an Equipment Officer, 3rd Cl., and to be Temp. Lieut. whilst so employed; Sept. 26th.

**Equipment Officers, 3rd Class.**—2nd Lieuts., Gen. List: H. C. Williamson; June 22nd. W. Millett; June 23rd. July 1st: L. Auker, W. H. Clover. F. Pratt; Oct. 1st. Oct. 12th: J. Rigby, C. L. Archbold, O. W. Latimer, J. Rylands. J. P. Angell; Oct. 19th. The appointments of the under-mentioned, notified in the *Gazette* of Sept. 27th, are antedated to Aug. 1st:—2nd Lieuts., S.R.: H. H. W. Vowden, H. E. L. Pilbrow, G. A. Lawlor, E. G. Herbert, L. Stones.

**Memoranda.**—The under-mentioned Cadets to be Temp. 2nd Lieuts. (on prob.) for duty with R.F.C.:—Nov. 5th: D. C. Sutherland, F. Briggs, H. McG. Wood, D. H. Etheridge, A. Howard, E. C. Frisby. The under-mentioned to be Temp. 2nd Lieuts. (on prob.) for duty with R.F.C.:—Nov. 5th: Sergt. R. Rainford, L.-Corpl. A. Hodgkins, Pte. R. Leake, Sergt. P. R. Garner, Sergt.-Drmr. G. J. Enguell, L.-Corpl. E. E. Beaumont.

**Supplementary to Regular Corps.**—The under-mentioned 2nd Lieuts. (on prob.) are confirmed in their rank: S. Willmetts, A. V. H. Gompertz, C. E. de Berigny, R. B. Bourne, R. W. Reid, V. H. Adams. The under-mentioned to be 2nd Lieuts. (on prob.):—Oct. 16th: H. F. Wilkinson, J. D. Smith. A. R. Mitchell; Nov. 5th. Nov. 6th: E. P. Proud, W. S. Farley, C. J. S. Holden.

*London Gazette, November 7th.*

**Special Appointments (graded as Park Commanders).**—Lieut. (Temp. Capt.) B. S. Foster, Hamps. R. (T.F.), and to be Temp. Maj. whilst so employed; Sept. 2nd. Lieut. (Temp. Capt.) H. S. Ebben, S.R., from an Equipment Officer, and to be Temp. Maj. whilst so employed; 26th Sept. Temp. Capt. F. W. K. Davies, A.S.C., to be transferred to Gen. List, and to be Temp. Maj. whilst so employed; Sept. 20th (substituted for the notification in the *Gazette* of Oct. 5th).

**Flight Commanders.**—From Flying Officers. And to be Temp. Capt. whilst so employed. 19th Sept.: 2nd Lieut.

(Temp. Lieut.) N. J. Bengough, Fife and Forfar Yeo. (T.F.); 2nd Lieut. (Temp. Lieut.) H. Hemming, Worc. R. 2nd Lieut. W. G. Pender, S.R.; Oct. 16th. Oct. 18th: Temp. 2nd Lieut. J. McArthur, Gen. List; 2nd Lieut. G. S. Thorne, S.R.; 2nd Lieut. L. W. Hall, Bord. R.; Oct. 20th.

*Flying Officers.*—Temp. Capt. J. W. Tailford, Gen. List; Aug. 4th. (Substituted for the notification in the *Gazette* of Aug. 25.) 2nd Lieut. R. L. Edward, Liverpool R., and to be seconded; Oct. 17th. Oct. 19th: Temp. 2nd Lieut. W. N. Hamilton, Northd. Fus., and to be transferred to Gen. List; 2nd Lieut. F. W. Ward, N. Staff. R., and to be seconded. Temp. 2nd Lieut. J. R. Middleton, Camn. Highrs., and to be transferred to Gen. List; 20th Oct.

*Flying Officers (Observers).*—Capt. H. H. Bagnall, Middx. R. (T.F.); April 22nd. Aug. 15th: Lieut. R. P. I. Cochrane, 17th Cav., Ind. Army; Temp. Lieut. W. A. Forsyth, R.A., and to be transferred to Gen. List; 2nd Lieut. E. N. D. Barr, R.F.A., S.R.; 2nd Lieut. L. H. Browning, R.A., and to be seconded.

*Equipment Officers, 3rd Class.*—Temp. Capt. T. E. Gilmore, Northn. Fus., and to be transferred to Gen. List; Aug. 17th. Temp. 2nd Lieut. A. D. Bateman, R. W. Kent R., and to be transferred to Gen. List; Aug. 22nd. Sept. 19th: 2nd Lieut. G. A. Turner, Dorset R., S.R., and to be seconded; Temp. 2nd Lieut. (on prob.) J. Jardine, R.E.; 2nd Lieut. (on prob.) R. Clelland, S.R.; Oct. 21st.

*Assistant Experimental Officer (graded as an Equipment Officer, 3rd Class).*—2nd Lieut. (Temp. Lieut.) J. R. H. Whiston, Notts. and Derby. R. (T.F.); Oct. 18th.

*Memorandum.*—Sergt.-Maj. A. M. Saywood, from R.F.C., to be 2nd Lieut. for duty with R.F.C.; Nov. 1st.

*Supplementary to Regular Corps.*—2nd Lieut. (on prob.) G. S. Deane is confirmed in his rank. C. R. Becke to be 2nd Lieut.; Sept. 3rd. The undermentioned to be 2nd Lieuts. (on prob.): H. L. U. Clark; Oct. 16th. J. R. McDonnell; Oct. 22nd. S. G. Elliott-Smith; Oct. 24th. Nov. 5th: T. H. Cooper, F. G. Buck, S. A. Mitchell, S. G. Lingssen, C. Groves, S. Wilson, H. W. Prockter, L. H. Clifford, W. G. Murray, R. Rochford, F. D. Lugard, L. S. Pape, S. J. Vine.

## London Gazette Supplement, November 8th.

The undermentioned to be Temp. 2nd Lieuts. (on prob.):

*For Duty with R.F.C.*—Sergt. S. Jolley, from R.F.C.; Oct. 10th. Sergt. J. R. Bingham, from H.A.C. (T.F.); Oct. 12th. Oct. 13th: Acting Sergt.-Maj. F. Knight, from R.F.C.; Acting Sergt. J. W. Askham, from R.F.C.; 2nd Class Air Mech. R. G. Shackel, from R.F.C. Oct. 14th: Corpl. G. G. Williams, from 28th Lond. R. (T.F.); 1st Class Air Mech. P. S. Riach, from R.F.C.; Pte. K. R. Napier, from Can. Corps. Cav. Regt. Oct. 15th: 1st Class Air Mech. C. A. Stevenson, from R.F.C.; Pte. B. W. A. Ordish, from Lond. R. (T.F.); Acting Sergt. H. S. Elliott, from Can. A.S.C.; Oct. 16th.

*Wing Commanders.*—From Squadron Comdrs. And to be Temp. Lieut.-Cols. whilst so employed. Sept. 21st: Capt. (Temp. Maj.) R. P. Mills, M.C., R. Fus.; Capt. (Temp. Maj.) T. W. C. Carthew, D.S.O., Bedf. R., S.R.

*Flight Commanders.*—From Flying Officers. Oct. 9th. Temp. Capt. F. D. Berridge, Gen. List; 2nd Lieut. A. S. C. MacLaren, M.C., K.O. Sco. Bord., S.R., and to be Temp. Capt. whilst so employed.

*Flying Officers.*—Oct. 4th: 2nd Lieut. (Temp. Lieut.) D. V. D. Marshall, High. Divl. Trains, A.S.C. (T.F.); Temp. Lieut. J. K. Robertson, A.S.C., and to be transferred to Gen. List; 2nd Lieut. (on prob.) A. E. Venables, S.R. Temp. 2nd Lieut. F. S. Potts, Gen. List; Oct. 19th. Oct. 20th: Temp. 2nd Lieut. (on prob.) A. R. Nock, R. War. R., and to be transferred to Gen. List; 2nd Lieut. (Temp. Lieut.) W. F. T. James, Glamorgan Yeo. (T.F.); Temp. 2nd Lieut. (Temp. Lieut.) W. G. Chambers, Linc. R.; Temp. 2nd Lieut. W. Mitton, Linc. R.; Temp. 2nd Lieut. E. A. Welch, Lanc. R., and to be transferred to Gen. List; Capt. W. W. Leete, Ches. R. (T.F.); Temp. Lieut. N. A. Birks, Machine Gun Corps (Motor), and to be transferred to Gen. List; Temp. 2nd Lieut. J. F. Duff, Gen. List. Oct. 21st: 2nd Lieut. (on prob.) N. L. Knight, S.R.; 2nd Lieut. (on prob.) R. W. Jones, S.R. Oct. 22nd: 2nd Lieut. (Temp. Capt.) W. S. Farren, Aircraft Parks, R.F.C. (T.F.); 2nd Lieut. R. M. Findlay, Co. of Lond. Yeo. (T.F.); Temp. 2nd Lieut. (on prob.) E. T. Collins, Gen. List; 2nd Lieut. (on prob.) D. N. Robertson, S.R. Oct. 23rd: Temp. 2nd Lieut. E. Hamilton, Machine Gun Corps, and to be transferred to Gen. List; Temp. 2nd Lieut. (on prob.) R. N. Smith, Hamps. R., and to be transferred to Gen. List; 2nd Lieut. (on prob.) F. C. Young, S.R.; 2nd Lieut. (on prob.) A. L. Macfarlane, S.R. Oct. 24th.

*Equipment Officer, 3rd Class.*—2nd Lieut. C. R. Becke, S.R.; Oct. 2nd.

*Memorandum.*—Pte. G. Edwards from A.S.C. to be Temp. 2nd Lieut. (on prob.) for duty with R.F.C.; Oct. 27th.

*Supplementary to Regular Corps.*—2nd Lieut. (on prob.) D. N. Keith is confirmed in his rank. The undermentioned to be 2nd Lieuts. (on prob.): G. Urquhart; Oct. 21st. Nov. 5th: J. H. Secker, A. G. Stradling, O. L. Vetter, J. D. Richards.

## London Gazette Supplement, November 9th.

*Flying Officers (Observers).*—Oct. 24th: Temp. Lieut. D. M. Murdoch, Essex R., and to be transferred to Gen. List; Temp. 2nd Lieut. L. B. Williams, Army Cyclist Corps, and to be transferred to Gen. List; 2nd Lieut. G. F. Bishop, Lond. R. (T.F.); Temp. 2nd Lieut. L. Waight, Gen. List. Temp. 2nd Lieut. E. T. Pruen, Gen. List; Oct. 25th.

*Memorandum.*—Pte. F. M. Thomas from Bedf. R. (T.F.) to be Temp. 2nd Lieut. (on prob.) for duty with R.F.C., Nov. 5th.



A detachment of the R.N.A.S. in the Lord Mayor's Procession on November 9th.



**Supplementary to Regular Corps.**—The undermentioned 2nd Lieuts. (on prob.) are confirmed in their rank: F. C. Young, G. R. Nicholson, R. Donald, A. L. Macfarlane, A. S. F. Morris, A. E. Venables, D. N. Robertson, R. W. Jones, H. G. Gold to be 2nd Lieut.; 3rd Sept. E. Butler to be 2nd Lieut. (on prob.); Aug. 24th.

*London Gazette, November 10th.*

**Flight Commanders.**—From Flying Officers, and to be Temp. Capts. whilst so employed. Oct. 30th: 2nd Lieut. G. P. S. Reid, M.C., Sea. Highrs.; 2nd Lieut. E. Henty, S.R.

**Balloon Officers.**—Oct. 14th: Temp. Capt. H. V. Knox, Oxf. and Bucks. L.I., and to be transferred to Gen. List; Lieut. H. N. Witting, R.W. Surr. R., S.R., and to be seconded; Temp. 2nd Lieuts., Gen. List—E. H. Channon, H. W. Ingram, R. G. C. Pinfield, W. E. Wright.

**Equipment Officers, 3rd Class.**—2nd Lieut. (on prob.) A. E. Verpilleux, S.R.; July 31st. 2nd Lieut. I. M. Rodney, Dorset R., from a Flying Officer; Aug. 17th. 2nd Lieut. (on prob.) W. Birtwistle, S.R.; Sept. 4th. 2nd Lieut. F. L. Fletcher, Manch. R. (T.F.); Sept. 13th. Oct. 1st: Temp. 2nd Lieut. A. L. Pearce, Gen. List; 2nd Lieut. H. G. Gold, S.R. Temp. 2nd Lieut. V. C. Legg, Gen. List; Oct. 2nd. Oct. 4th: Temp. 2nd Lieut. (on prob.) H. A. Blanchard, Gen. List; Temp. 2nd Lieut. (on prob.) L. A. Goss, Gen. List. 2nd Lieut. (on prob.) R. N. Vyvyan, S.R.; Oct. 9th: 2nd Lieut. R. H. Rayner, W. Rid. R. (T.F.). Oct. 12th. Temp. 2nd Lieut. C. R. Coffey, Gen. List; Oct. 16th. 2nd Lieut. (on prob.) H. E. Earl, Rif. Brig., S.R., and to be seconded; Oct. 19th.

**Memoranda.**—2nd Class Air Mech. L. P. Timmins, from R.F.C., to be Temp. 2nd Lieut. (on prob.) for duty with the Mil. Wing of that Corps; Nov. 5th. C. Channing to be Temp. 2nd Lieut. (on prob.) for duty with R.F.C.; Nov. 6th.

*London Gazette Supplement, November 11th.*

**Flying Officers.**—Oct. 22nd: 2nd Lieut. W. B. Clark, Sussex Yeo. (T.F.); 2nd Lieut. P. L. Wood, S.R. Oct. 23rd: Maj. O. M. Conran, R. Lanc. R.; Lieut. C. H. Windrum, R. W. Kent R., and to be seconded. Oct. 24th: 2nd Lieut. (Temp. Lieut.) R. W. P. Hall, W. Lan. Brig., R.F.A. (T.F.); 2nd Lieut. W. W. Cowan, R. Scots (T.F.); 2nd Lieut. G. E. Gordon Duff, Camn. Highrs., and to be seconded. Temp. Lieut. E. H. Tatton, E. York. R., and to be transferred to Gen. List; Oct. 25th.

**Balloon Officers.**—Oct. 26th: 2nd Lieut. (Temp. Lieut.) B. D. Higman, Lond. R. (T.F.); 2nd Lieut. A. R. Wilkie, Middx. R. (T.F.); Temp. 2nd Lieut. H. Cresswell, Gen. List; Temp. 2nd Lieut. S. C. Lumb, Gen. List; Temp. 2nd Lieut. C. E. Mott, Gen. List.

**Memorandum.**—Cadet A. Gane to be Temp. 2nd Lieut. (on prob.) for duty with R.F.C.; Nov. 5th.

**Supplementary to Regular Corps.**—2nd Lieut. H. D'O. Benningfield is dismissed the Service by sentence of a General Court-martial; Sept. 7th. The appointment of 2nd Lieut. (on prob.) A. C. Blackmore, notified in the *Gazette* of July 27th, is antedated to June 19th. The undermentioned 2nd Lieuts. (on prob.) are confirmed in their rank: W. Birtwistle, P. L. Wood, A. E. Verpilleux, R. N. Vyvyan, H. L. Webb to be 2nd Lieut.; Oct. 19th. L. A. Owen to be 2nd Lieut. (on prob.); Nov. 5th.

*London Gazette Supplement, November 13th.*

**Flying Officers.**—2nd Lieut. A. N. G. Summers, 9th Lrs., and to be sec'd.; Oct. 1st. 2nd Lieut. E. N. Griffith, Oxf. and Bucks. L.I., S.R., and to be sec'd.; Oct. 21st. 2nd Lieut. F. W. Partington, S. Lan. R., S.R., and to be sec'd.; Oct. 23rd. Oct. 24th: 2nd Lieut. C. T. Wilson, R. Ir. Fus., S.R., and to be sec'd.; Temp. 2nd Lieut. (on prob.) E. W. A. Hunt, Gen. List; 2nd Lieut. E. A. Mearns, S.R.; Temp. 2nd Lieut. T. H. Gladstone, Gen. List; Temp. 2nd Lieut. F. E. Wilshire, Rif. Brig., and to be transf'd. to Gen. List; Temp. 2nd Lieut. J. H. Medcalf, Bord. R., and to be transf'd. to Gen. List; 2nd Lieut. D. McC. Kerr, S.R.; Temp. Capt. J. E. Chick, A.S.C., and to be transf'd. to Gen. List; Oct. 25th.

**Equipment Officers, 3rd Class.**—2nd Lieut. P. H. R. Whittet, S.R.; Sept. 29th. Temp. 2nd Lieut. C. H. Simpson, Gen. List; Oct. 2nd. 2nd Lieut. H. L. Webb, S.R.; Oct. 27th.

**Supplementary to Regular Corps.**—The under-mentioned 2nd Lieuts. (on prob.) are confirmed in their rank: R. Clelland, E. E. Cutts, D. McC. Kerr, C. Deards, E. A. Mearns, P. H. R. Whittet.

#### **School of Aerial Gunnery.**

*London Gazette Supplement, November 13th.*

**Assistant Instructors (graded as Equipment Officers, 2nd Class, and to be Temporary Lieutenants while so employed).**—Oct. 24th: Temp. 2nd Lieut. H. Cockerell, Gen. List, from a Flying Officer (Ob.); 2nd Lieut. P. H. R. Whittet, S.R., from an Equipment Officer, 3rd Cl.

#### **Wireless and Observers' School.**

*London Gazette Supplement, November 11th.*

**Commandant (graded as a Park Commander).**—Lieut. (Temp. Capt.) H. A. Oxenham, S.R., from an Equipment Officer, and to be Temp. Maj. whilst so employed; Oct. 8th.

#### **Royal Flying Corps (Territorial Force).**

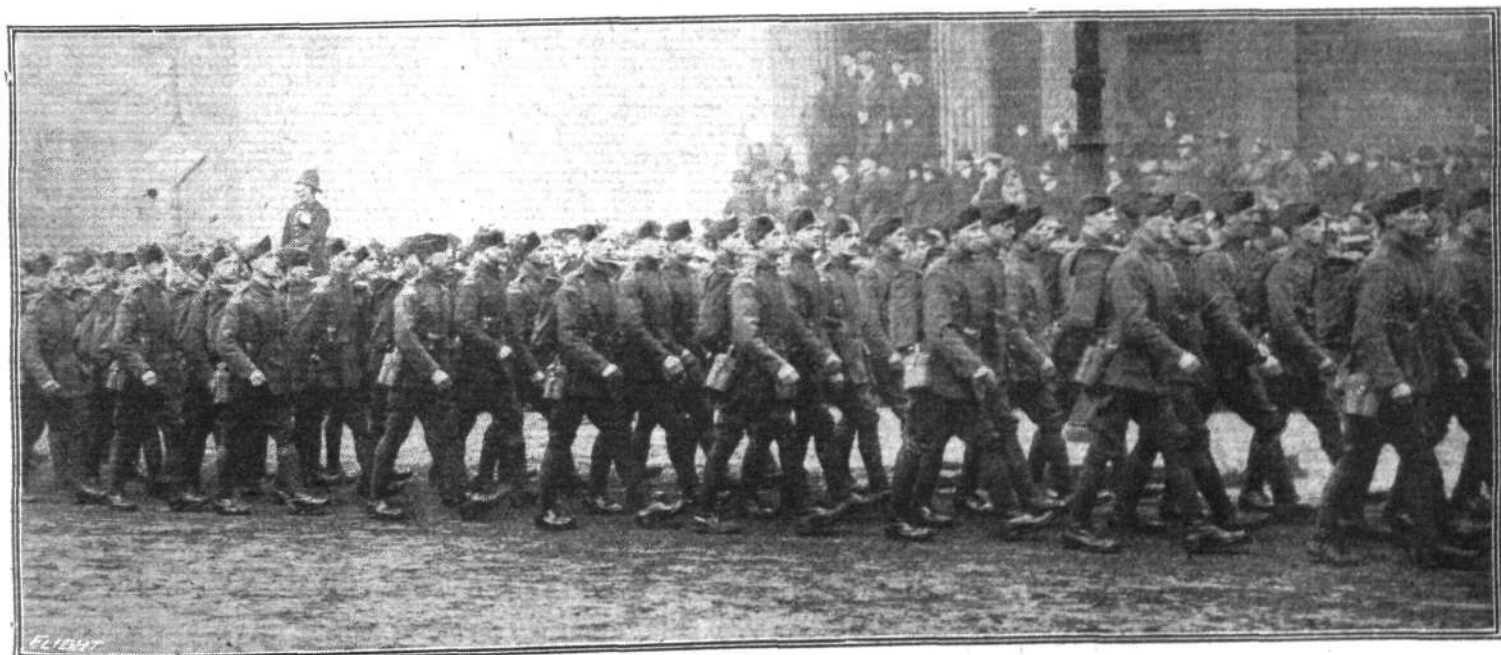
*London Gazette, November 7th.*

**Hampshire Aircraft Park.**—2nd Lieut. (Temp. Capt.) W. S. Farren is seconded for duty with the R.F.C.; Oct. 22nd.

#### **Aeronautical Inspection Department.**

*London Gazette Supplement, November 1st.*

E. Leonard Mann to be Temp. Hon. Lieut. (without pay and allowances) whilst employed as an Asst. Inspr. Aeronautical Dept.; Nov. 1st.



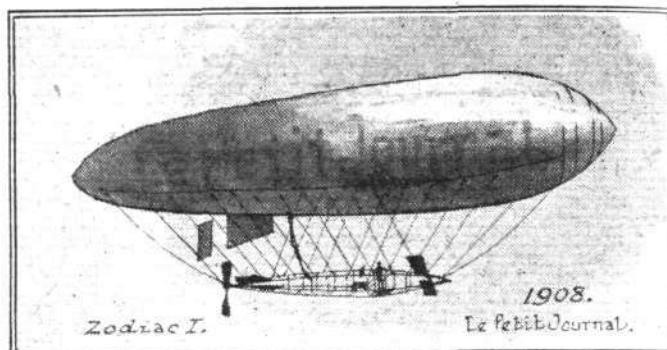
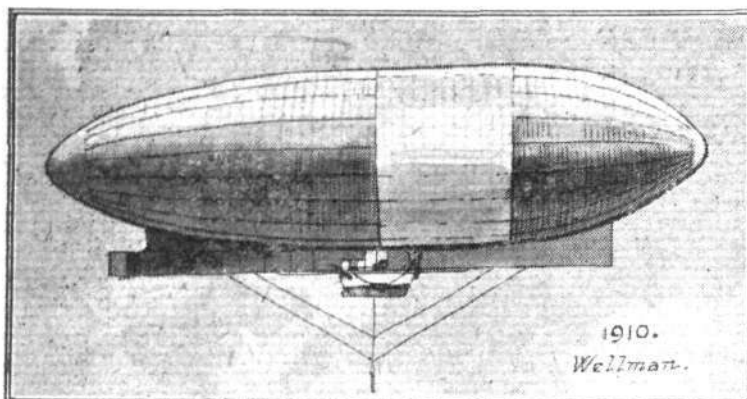
And a detachment of the R.F.C.

# AIRSHIP PIONEERS

(Concluded from p. 980.)

To go back to the efforts made from 1907. Encouraged by the results obtained from his first airship, Comte de la Vaulx, with M. Mallet, formed the Société Française de Ballons Dirigeables et d'Aviation "Zodiac," at Puteaux. The first

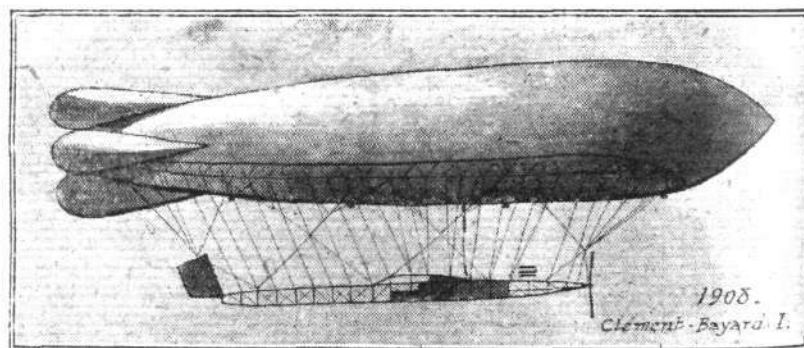
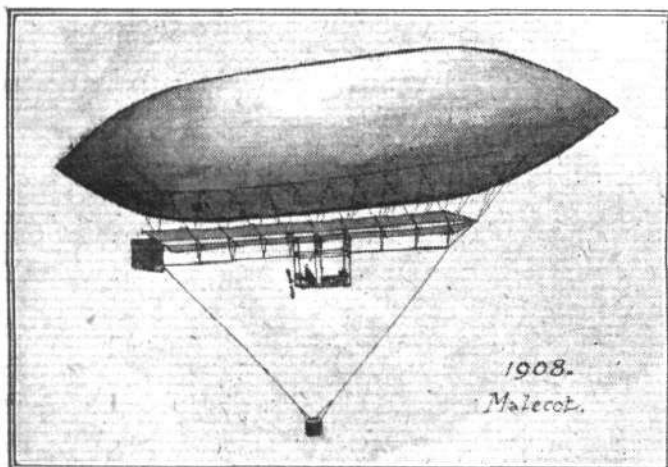
main feature consisted in the employment of a large plane surface mounted below the envelope. This surface measured about 1,500 square ft., and was mounted on the top of a triangular wooden frame, forming the keel, to which the car was rigidly attached. A 28 h.p. engine was mounted in the car, and drove a propeller at the rear of the latter. Steering



dirigible produced by this firm was the "Zodiac I," "Le Petit Journal," in 1908. This was a small sporting airship of neat appearance. Its main feature as with succeeding models, was the ease with which it could be dismantled and transported from place to place. It had a cigar-shaped envelope, tapering both ends, built up in three sections. The central section carried the power plant, pilot and passenger. The

in the horizontal plane was accomplished in the usual manner by a rudder fixed to the rear of the keel, but vertical steering was brought about by changing the position longitudinally of a small ballast basket suspended some 60 ft. below the keel. Although several successful flights were put up by this ship, it did not appear to offer any great advantage over orthodox dirigibles of that day.

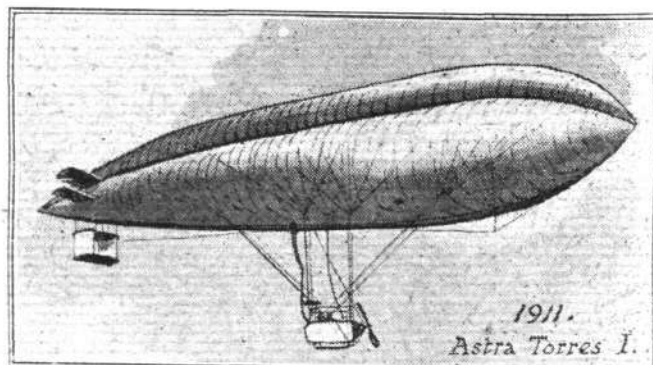
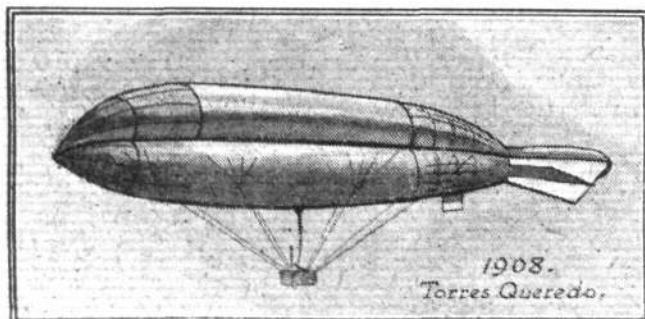
The same year, the Astra Co., of Billancourt (founded by M. Surcouf, and the builders of the "Ville-de-Paris"), constructed a ship, somewhat on the lines of the "Ville-de-Paris," for M. Clement, the well-known motor engineer. "Clement-Bayard I" differed from the "Ville-de-Paris"



engine, a 16 h.p. Clerget, drove through a jointed shaft an 8 ft. propeller at the rear of the nacelle, and also operated the air-ballonet pump. Either coal-gas or hydrogen could be used. Steering was effected by horizontal planes mounted on the bow of the nacelle, and a rudder attached to the envelope at the rear. The succeeding Zodiacs were very similar in design, and differed only in dimensions and details.

M. Malecot, another Frenchman, carried out some trials in 1908 with a rather novel type of semi-rigid airship. Its

mainly in the provision of pear-shaped inflated fins instead of cylindrical ones. A similar shaped nacelle was used, but the power plant—a 120 h.p. Clement-Bayard engine driving a tractor screw—and the pilot, passengers, &c., were all concentrated in one centrally disposed "cabin." Most of the succeeding Astra vessels followed the same general design of "Clement-Bayard I," but other Clement-Bayard ships



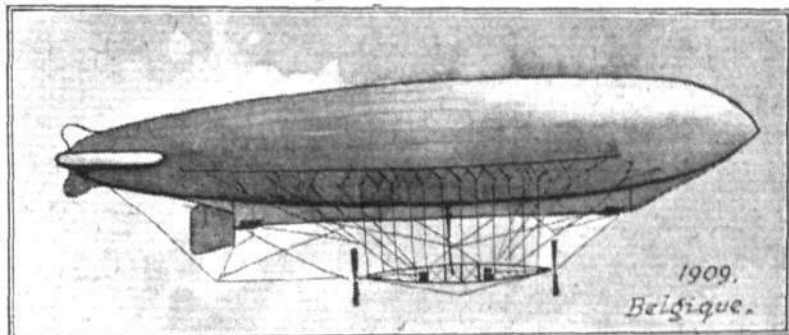


were constructed by a separate company of that name. These vessels had cigar-shaped envelopes without any inflated fins, these being replaced by plane surfaces mounted on the *nacelle*. The tractor screw was also dispensed with, and two side propellers used instead. Later models employed a short car instead of the long *nacelle*.

Another type of dirigible produced by the "parent" Astra Co., was the Astra-Torres, a development of the Spanish airship, "Torres Quevedo," built in 1908. The feature of this latter ship was in the trefoil shape in section of the envelope, and the method of suspension. The envelope was internally braced, across the points of intersection of the three shapes, and the suspension lines of the car were also attached to the points of intersection. The Torres-Quevedo airship was 118 ft. long, and the car contained two 40 h.p. Antoinette motors, each driving a side propeller. The Astra-Torres, No. 1, of 1911, employed this system of envelope and suspension, but was much larger and improved. A 55 h.p. Chenu drove a tractor screw mounted on the front of the car.

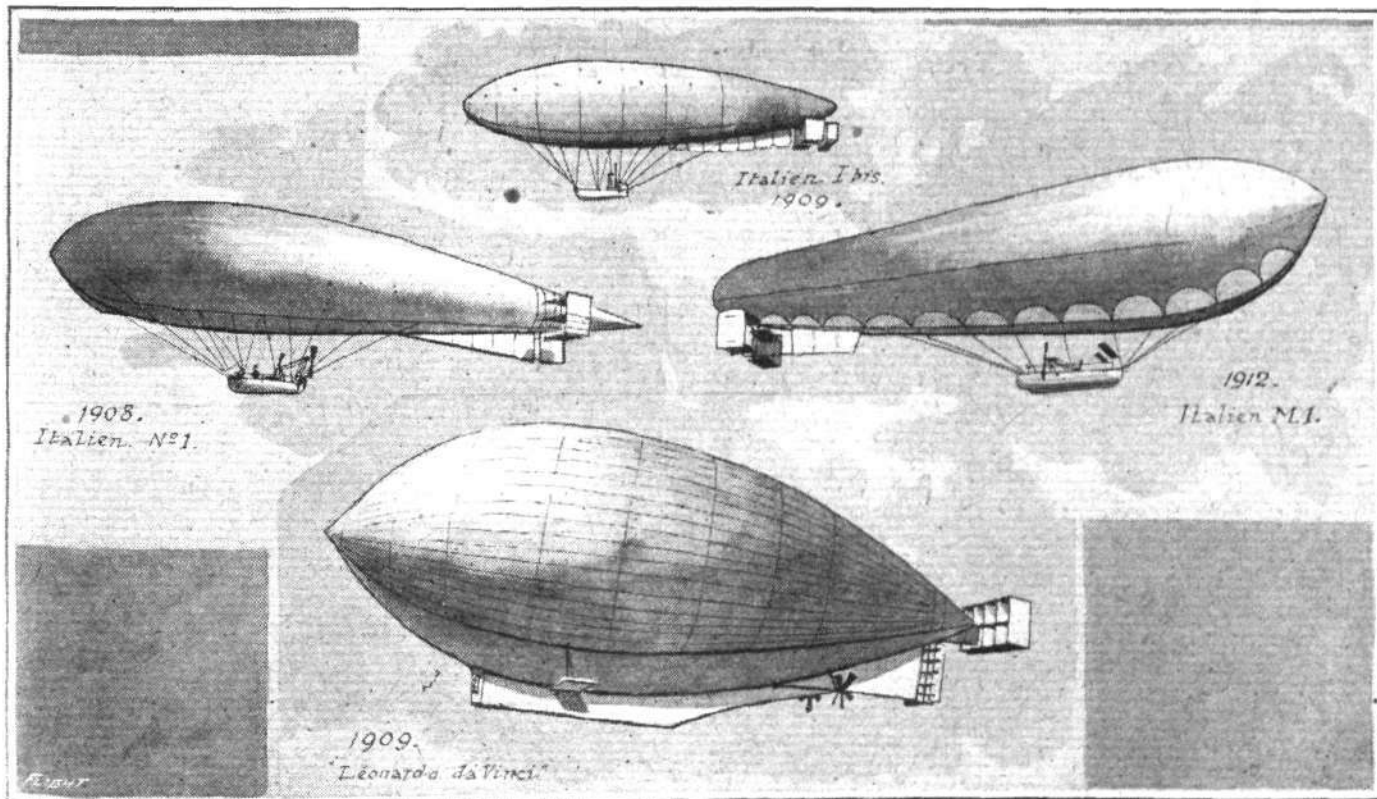
Italy also joined the ranks of airship pioneers in 1908, Captains Crocco and Ricaldoni producing a very successful semi-rigid dirigible of graceful appearance. The envelope, of streamline shape, tapered from a maximum diameter far forward, of about 33 ft., to a fine point at the stern. Later, when this ship was rebuilt as No. 1 *bis*, the rear portion of the envelope was given a much blunter point, which certainly improved the ship constructionally, if not artistically. Inside the lower portion of the envelope, which forms the air ballonet, was a metal backbone, extending through the envelope at the rear in the form of a fin, to which the rudder was hinged. Suspended from the backbone was a boat-shaped car, which contained a 100 h.p. Clement-Bayard engine driving a pair of side propellers, mounted above the car. Elevating planes were fitted to the tail of the envelope. The construction of No. 1 *bis* was similar, but modified to the extent that the envelope was divided up into seven entirely separate gas compartments, each with an air ballonet. The backbone was also divided into sections. These ships were used by the Army and classed as the "P." 1, 2, 3, &c., whilst later improved types of 1912, known as the "M" class, were taken over by the Navy. Another type of Italian semi-rigid airship was the Forlanini. This had a stumpy envelope built up on a somewhat elaborate framework of metal tubing, forming a backbone. The lower portion of the envelope, from stem to stern, was partitioned off to form an air ballonet, and it

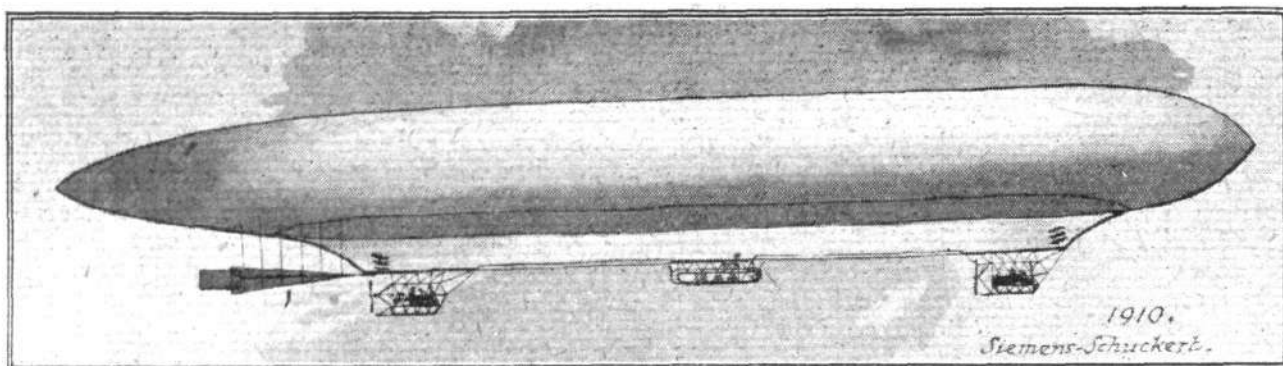
was within this chamber the envelope was attached to the frame. Communication with the atmosphere was made through the walls of the ballonet. The framework extended below the envelope, and formed a keel extending from the stern for about two-thirds the length of the ship. The front portion of the keel was built up into a cabin for the pilot and passengers, whilst the rear portion carried the steering planes and propeller supports. The whole keel was covered in, and special windows were fitted in front. The engine, a 40 h.p. Antoinette, was located in the keel behind the fore cabin and drove two propellers situated at the extreme stern of the ship, through gearing and shafts. A small auxiliary engine operated an air pump for maintaining



the pressure in the air compartment and also for ventilating and renewing the air in the cabin, which, it must be remembered, was in direct communication with the lower portion of the envelope or air ballonet. The first ship was named "Leonardo da Vinci," and was, on the whole, most successful. Succeeding models were of the same general design, but were larger and had a high fineness ratio.

Belgium had a dirigible constructed for her in 1909 by M. Godard, of France. This was of the semi-rigid type, the envelope being attached to a rigid keel from which a girder-form *nacelle* was suspended. The latter contained two 55 h.p. Vivinus motors, one driving a tractor screw, and one a propeller, both mounted at the ends of the *nacelle*. A separate motor operated the air-ballonet pump, and provision was made for warming the air if required. Inflated fins were attached to the tail of the envelope, a horizontal one tubular in shape, and two vertical of pear shape. A





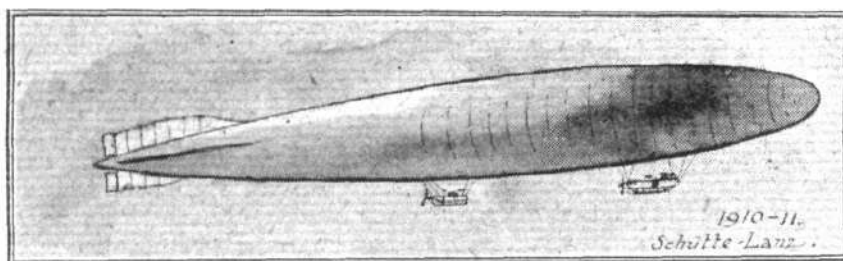
rudder was hinged to the rear of the keel, which was covered with fabric the whole of its length. A speed of 25 m.p.h. was obtainable with this dirigible.

The next airship to be considered is the large semi-rigid built by Siemens-Schuckert in Germany during 1910. In outward

ship, "S.L.2," however, was far more successful. It was considerably larger, and bore a striking resemblance to Zeppelin "L.33," recently described in FLIGHT. The arrangement of the gondolas was very similar, except that an additional large, enclosed cabin was attached to the body in front of the forward gondola. Each gondola contained a 180 h.p. Maybach engine driving a propeller at the rear.

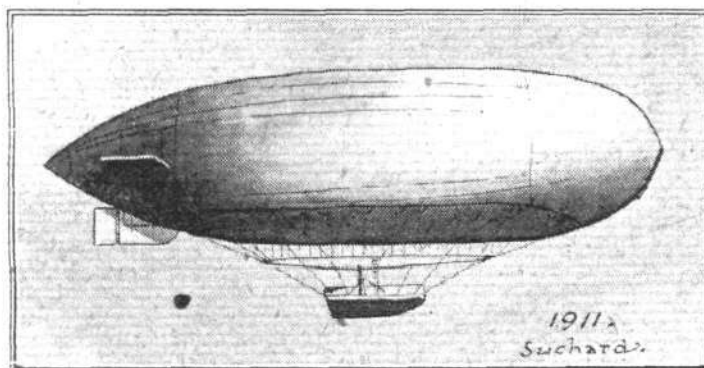
Walter Wellman was not the only one to conceive the idea of crossing the Atlantic by dirigible, for a German-American, Joseph Brucker, constructed an airship in Germany in 1911. The expedition was backed financially by the well-known Swiss firm of Suchard, and hence the ship was named the "Suchard." The designers centred their efforts mainly on the question of safety and large range of action, by producing a ship of comparatively

large size and low speed. It had a streamline envelope made of a special fabric, consisting of three layers of rubber-impregnated cloth. Suspended from the envelope was a car in the form of a seaworthy boat, and between the former and the latter was a light

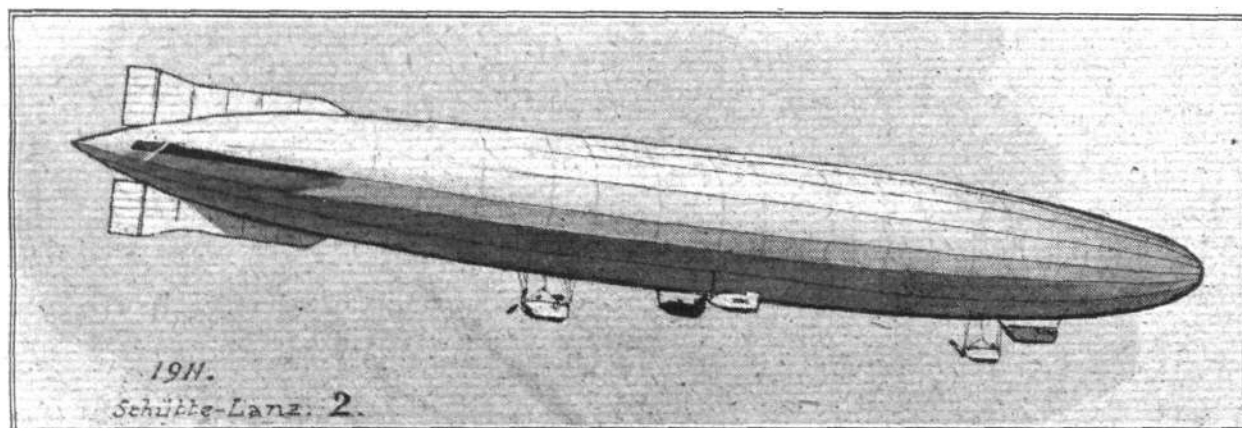


appearance this ship very much resembled a Zeppelin. The envelope, which was 387 ft. long and 43 ft. in diameter, was attached to a long covered-in keel. To this keel were attached, fairly close up, three gondolas, one at each end and one in the centre. The two end gondolas each contained two 125 h.p. Mercedes engines located fore and aft. The forward engine drove two side screws, and the rear engine was coupled direct to a propeller at the stern of the gondola. The central gondola was for passengers, although we believe experiments were made with an engine mounted in this car driving a lifting screw. The results obtained with this ship were apparently unsuccessful, for no more was heard of it after the trials.

In the following year Germany produced another dirigible on rigid lines in the Schütte-Lanz. This differed from the Zeppelin in the employment of wood for the framework, and that its shape was of streamline, or cigar, form. The wood frame was built up of spirally-laid ribs or stringers on circular formers. The whole was elaborately braced with wire. There were two gondolas slung some distance below the body—one, the larger, being comparatively far forward and the other a little to the rear of the centre. Each contained a 270 h.p. Mercedes engine driving a single propeller. Rudders and elevators were attached to vertical and horizontal fins respectively, mounted on the stern of the body. The early trials did not meet with over much success, but, after several modifications, it was rendered serviceable enough to be taken over by the Government. The second

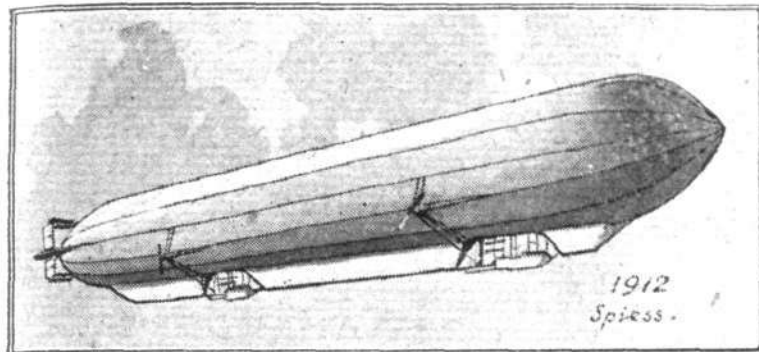


platform or deck. The boat, which was well equipped and provisioned, contained two 110 h.p. N.A.G. engines, driving port and starboard propellers. As in the Wellman airship, a special form of guide rope was employed to maintain vertical equilibrium. This consisted of a trailing cable



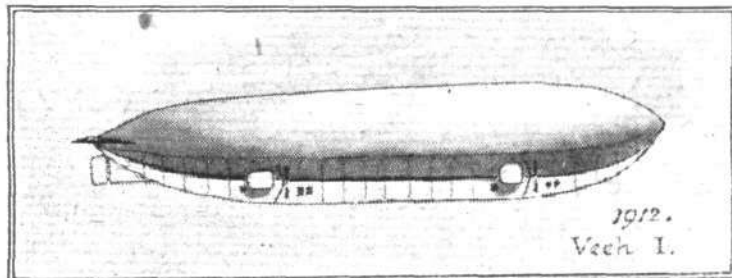


to which were attached a series of streamlined vessels, which scooped up the water as they were drawn through it. The problem of the continual variation in the temperature by night and day, and its effect on the gas in the envelope, was handled in a very ingenious manner. In addition to the air ballonet, which had a capacity of about one-third



the total volume, the envelope could be cooled, by means of an external water spray. For this purpose a perforated hose was mounted along the top of the envelope, and water was pumped into it from the boat. This ship underwent numerous trials and modifications, but the Trans-Atlantic flight never materialised.

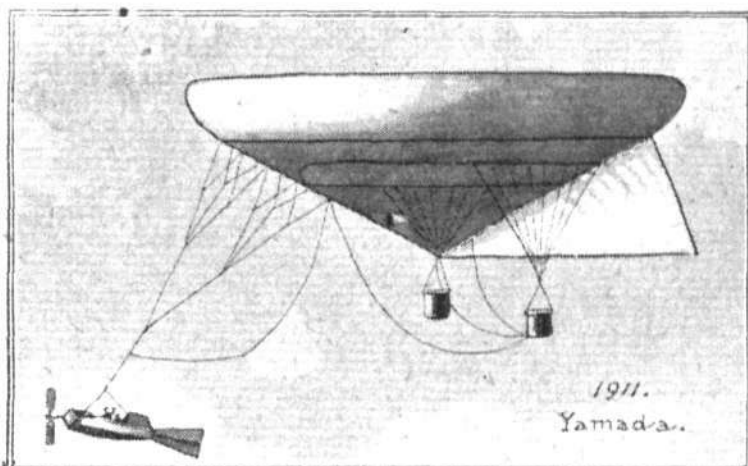
France, as well as Great Britain, tried her hand at the rigid type of airship, and in 1912 the "Spiess" (Zodiac Co.) made its reception tests for the French Government. Although on the same general lines as the Zeppelin, the "Spiess" differed considerably in construction. The main framework consisted of hollow-wood formers bound with fabric, upon which was built up a lattice work of aluminium, the whole being extensively braced with steel wire. There were 14 sides to the polygon and about 14 compartments containing a gas bag. There were two gondolas mounted below the hull and connected by a "cat-walk" as in the Zeppelin. In the first model the front gondola only contained a motor, a 200 h.p. Chenu, driving side propellers mounted on the hull, but in 1913, in addition to other modifications, a second motor, of the same power, was added to the rear gondola. Trials were still being carried out at the outbreak of hostilities.



A rather interesting type of semi-rigid airship, the "Veeh," somewhat similar to the Forlanini, was experimented with in Germany during 1911 and 1912. This had a torpedo-shaped envelope attached to a rigid keel extending from

point to point. This keel was built up of steel tubes in the form of a girder, rectangular in section, and constituted an enclosed passageway extending for a greater part of the length of the ship, a pilot's cabin being formed in the front portion. Two engines were located in the keel, one forward and one aft, each driving a port and starboard propeller carried by a rigid framework mounted on the keel. The control planes were also attached to the keel.

Before concluding this *résumé* on "Airship Pioneers," mention should be made of an effort hailing from the Far East—the design of Isaburo Yamada, in Japan. His original design of 1909, as shown in one of the accompanying illustrations, was, practically speaking, a kite balloon rendered mobile by means of an aerial motor boat. The arrangement, though ingenious, does not appear to be at all practical, and it is doubtful if any successful results were obtained. As a captive kite balloon, however, some very good work was done at Port Arthur during the Russo-Japanese War. It should be pointed out here, that whereas the Parseval kite balloon was already in existence at that time, the Yamada balloon, although having a similar air-ballonet arrangement, was in reality an original Japanese idea. For



hundreds of years in Japan, May 5th has been the occasion of "The Boys' Festival," when large paper or silk balloons in the form of a carp, suspended on poles, were the emblem of the day. The mouth of the carp was open, and air forced in by the wind inflated the body and slowly escaped out through a small opening in the tail. Thus was the body of the carp kept always inflated, and the fish floated gaily in the air. The same idea is carried out in the kite balloon, air entering a chamber immediately below the gas envelope through a comparatively large aperture in front and slowly escaping through a smaller air vent at the rear. It will be seen that the Yamada balloon had a large triangular sail below the rear of the envelope, the purpose of which was to act as a steadying fin or rudder. In 1911 the Yamada airship appeared in another form. The envelope retained its main characteristics, but a conventional triangular-section nacelle was suspended below, in which was installed a 40 to 50 h.p. Korting engine.

#### Medals for the R.F.C.

In the long list of non-commissioned officers and men to whom His Majesty the King has been graciously pleased to award the Military Medal for bravery in the field announced in the *London Gazette* of November 12th, the following appears:—

28666 2nd Class Air Mech. F. DEAN, R.F.C.

In the list of awards of the Meritorious Service Medal in recognition of valuable services rendered with the armies in the field during the present war, the following appear:—

4310 Corpl. G. D. BELL, R.F.C.

348 Flight Sergt. H. E. BETHELL, R.F.C.

605 Sergt.-Major G. FELSTEAD, R.F.C.

1112 Actg. Sergt.-Maj. J. FULTON, R.F.C.

178 Flight Sergt. (A. S.-M.) J. R. GARDINER, R.F.C.

498 Flight Sergt. S. R. GOLDTHORPE, R.F.C.

1711 Corpl. G. GREEN, R.F.C.

136 Flight Sergt. H. GREEN, R.F.C.

1025 Flight Sergt. A. HAWLEY, R.F.C.

718 Flight Sergt. F. J. HELLYER, R.F.C.

780 Sergt. G. W. HEPPLER, R.F.C.

2057 Sergt. H. E. HUNT, R.F.C.

607 Corpl. T. HYLAND, R.F.C.

4999 Actg. S.-Maj. A. KNIGHT, R.F.C.

3599 Actg. S.-Maj. W. G. MANTELL, R.F.C.

2988 Actg. S.-Maj. E. MEYNELL, Hdqrs., R.F.C.

8347 Actg. S.-Maj. E. R. MILLINGTON, R.F.C.

217 Flight Sergt. D. H. NEWTON, R.F.C.

1027 Actg. S.-Maj. C. RApLEY, R.F.C.

5853 1st Class Air Mech. S. SHEARING, R.F.C.

4865 Corpl. V. E. WANSBURY, R.F.C.

2862 Corpl. R. S. WEAVER, R.F.C.

198 Serg.-Maj. F. WHILTON, R.F.C.

1071 Flight Sergt. E. R. WOOD, R.F.C.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## New Members.

In accordance with the rules, the Annual Subscription of any New Member who is elected between November 1st and December 31st of this year, will cover the period up to December 31st, 1917.

## Suspension of Entrance Fees of New Service Members.

Until further notice, Service Members will be elected to the Royal Aero Club without Entrance Fee.

## THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

## Subscriptions.

	£	s.	d.
Total subscriptions received to Nov. 7th, 1916	10,887	0	5
Collected at the Westland Aircraft Works, Yeovil (Fifty-fifth contribution) .. ..	0	13	7
Collected at the Westland Aircraft Works, Yeovil (Fifty-sixth contribution) .. ..	0	15	1
Staff and Workers of Gwynnes, Ltd. (Twenty-seventh contribution) .. ..	8	13	3

Total, November 14th, 1916 .. 10,897 2 4

B. STEVENSON, Assistant Secretary.

166, Piccadilly, W.



*The Car.*  
**No. 3, Clifford Street, New Bond Street, W. The new premises of the Royal Aero Club which will be opened in December.**

## Another Long-Distance Flight.

THE Balkans theatre is providing several records in the way of long-distance flights. According to a message from Petrograd on November 8th a British pilot had arrived at Reni, in the Dobrudja, having flown from the Greek Islands, near the Bosphorus.

## A Height Record.

MESSAGES from Turin on November 10th stated that Flight-Lieut. Guidi had attained a height of 7,950 metres (26,082 ft.), which is claimed as a world's height record. The Germans claim that Oelerich in July, 1914, reached a height of 8,150 metres, but this has never been authenticated.

## Fatal Accidents.

WHILE flying near Marlborough on November 8th Capt. R. Bentham, Manchester Regiment, met with a fatal accident. The machine, when at 2,000 ft., entered a storm cloud, when the engine stopped and the machine turned over and over. Just before reaching the ground the engine restarted, and the machine, righting itself, commenced to climb. The engine stopped again and the machine crashed to the ground. A verdict of "Accidental Death" was returned at the inquest on November 10th.

Second Lieut. J. A. Davey, R.F.C., was also killed on

November 8th. After flying for about 400 yards his machine appeared to be uncontrolled and dived into a shed. The pilot was found with a fractured skull and severe burns.

Second Lieut. H. E. Byers, Duke of Cornwall's Light Infantry, attached R.F.C., was flying on November 12th, when his machine fell from 3,500 ft. and he was killed. At the inquest on the following day a verdict of "Accidental Death" was returned.

Second Lieut. L. H. W. McKisack, Lancers and R.F.C., was killed while making a flight on an aeroplane on November 13th. At the inquest Lieutenant K. C. MacCallum said the deceased officer was making his first solo flight. He flew one circuit in a normal manner, and on completing the second circuit put on too much bank and apparently not enough rudder, which caused the machine to side-slip, and it fell from about a height of 25 ft. The machine was a total wreck. A verdict of "Accidental Death" was returned.

## An Aeroplane in a Main Street.

FORCED to come down, the pilot of an aeroplane tried to land in the main street of Felling, Gateshead-on-Tyne, but the machine caught a lamp-post and crashed to the ground. An elderly passerby, Robert Brewis, was injured and died from pneumonia supervening on the injuries. The jury exonerated the pilot.

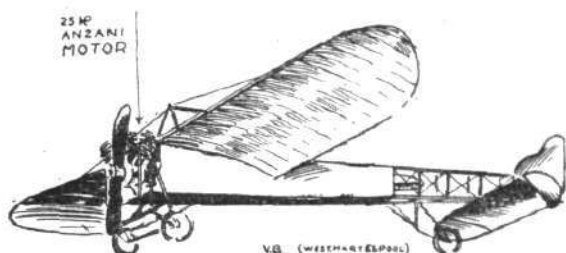


# Answers to Correspondents.

If in doubt about anything aviatric, write to "FLIGHT" about it.

**V. B. (West Hartlepool).**

The height above them to which objects such as buildings, trees, &c., affect the air varies very considerably, both according to the height, shape and general location of the objects and according to the velocity of the wind, and no general data are available on the subject. Certainly the effect of such objects is felt at a height of occasionally several hundred feet, in the form of air currents, "bumps," or whatever pet names pilots have for the various disturbances, although they could hardly be considered, as you suggest, dangerous. Generally speaking, there is no reason to suppose that the air is calmer over the sea than over land. What gives the impression that it is calmer over the sea is the fact



that as a rule the wind at a considerable distance from land is much steadier, although not necessarily of smaller velocity, than over the land. Your last question is not quite clear. You say M. Blériot's first flight, but we presume that you mean the cross-Channel flight, which was not, as a matter of fact, by any means his first flight, nor yet his longest, although it made him famous the world over. The cross-Channel flight took place on July 25th, 1909, M. Blériot starting from Les Baraques near Calais, and landing at Northfall Meadow, near Dover, the distance being about 31 miles and occupying about 40 minutes. During the crossing M. Blériot flew at an altitude of 150 to 300 ft.

**R. S. (Kingston).**

According to tests at the N.P.L., the resistance of an aeroplane wheel of 26 ins. diameter is 2.4 lbs. at 70 m.p.h. The wheel in question was of the disc type, and was dissymmetrical, having its hub slightly off-set laterally. For purposes of calculation it will be found sufficiently accurate to assume that the resistance increases as the square of the speed. Slightly different results will, of course, be obtained with symmetrical and more so with open wheels, but the figure stated may be taken as a fair approximation. Regarding the idea you have, you can send drawings to the Ministry of Munitions, Inventions Department, Princes Street, Westminster. But why not try to get in touch with a private firm of aeroplane constructors, with a view of getting them to take it up on a royalty basis?

**J. E. N. (Hammersmith).**

An aeroplane flying against or with the wind will have its ground speed correspondingly reduced or increased. Thus, for instance, if the speed of a machine is 100 m.p.h. in still air and it is heading into a wind of 40 m.p.h., its ground speed will be 60 m.p.h., or if the same machine is flying in a following wind of 40 m.p.h., its ground speed will be 140 m.p.h. We do not know of any reliable instrument that will indicate accurately the ground speed of an aeroplane, although several suggestions for such an instrument have been made. What is indicated on all naval and military aeroplanes is the air speed, which is indicated by a Pitot and Static pressure tube, but this does not of course take into account the velocity of the wind in which the machine is flying. If an aeroplane is not flying directly into or with a wind, but has the wind on the side, it will not reach the destination towards which it is apparently pointing on account of drift. In order to indicate to the pilot the amount of drift, which depends upon the relative velocities of the wind and the machine, and on the angle between the wind and the course of the aeroplane, instruments have been designed which, working in conjunction with the compass, indicate to the pilot how many degrees to allow for drift.

**A. W. (Sutton-on-Trent).**

We do not know of any special method of applying the dope to get the results you mention. Possibly in attaching the fabric you could make allowance for the difference in tightening up, putting it on very tight in the direction in which you wish it to pull up tight, while leaving it rather loose in the other direction.

**D. D. C. (East Sheen) and H. S. (Hants.).**

"Aeroplane Design," by F. S. Barnwell, 2s. 6d. net, and "The Design of Aeroplanes," by A. W. Judge, 9s. net. Both can be supplied from the offices of "FLIGHT" at these prices plus postage.

**A. H. P. (Oakleigh Park).**

The forward gondola in the latest type Zeppelin measures some 45 ft. in length and is about 8 ft. deep. As to the space occupied in this car by the engine, we refer you to our recent description of the "L. 33" in "FLIGHT."

**R. H. W. (Ramsgate).**

F.B.A. stands for the initials of Franco-British Aviation, the company which took up the manufacture of the Donnet-Leveque flying boat.

**A. V. H. (Maida Vale).**

The society you require is the Aeronautical Society, 11, Adam Street, Adelphi, W.C.

**E. L. (Barnsley).**

Generally speaking where the eyesight is so bad that glasses are necessary it would be a bar to the granting of a commission as a flying officer. With regard to wireless you should address your inquiry to the Regent Street Polytechnic, London, W.

**A. B. C. (Worcester).**

Apply to the Officer Commanding, R.F.C. Depot, Farborough.

**J. F. A. (Scarborough).**

Apply to the Admiralty for the proper forms, and on filling them up send them to the Director of Air Services, Admiralty, S.W. For particulars of the R.F.C. Cadets Battalion apply to Adastral House, E.C.

**S. L. M. (Norbury).**

You do not say whether you wish to obtain a commission or to enlist. If the former see reply to J.F.A.

**G. R. C. (South Bank).**

Yes, an "ordinary civilian" can join the R.F.C. or R.N.A.S. If he is granted a commission and is considered suitable he will be taught to fly.

**A. B. C. (Cheltenham).**

Yes. A cadet from the R.F.C. Cadet Corps is granted a "regular" commission if considered suitable. The pay of R.F.C. officers was set out in our issue of November 9th on page 984.

**R. W. G. (Golder's Green).**

The possession of a R.Ae. Club pilot's certificate does not entitle one to a commission. The "wings" in the R.F.C. are only granted after carrying out a series of tests a good deal more difficult than those for the ordinary R.Ae.C. certificate. There seems to be some uncertainty as to whether the grant is now being made; you should apply to Adastral House for information.

**W. G. M. (Edinburgh).**

See reply to R.W.G. above. Apply to the headquarters of the R.F.C., Adastral House, London, E.C., for the requisite forms, and send them, when filled up, to the Director-General of Military Aeronautics, Adastral House, E.C. The replies to the two specific questions are:—1. Apply for your commission first. 2. No.

**H. W. B. (Southfields).**

See reply to J.F.A.

**B. P.**

The best compression gauge we know for the purpose you mention is the "Okill," made by Taylor's (Brass Founders), Ltd., All Saints' Street, Bolton, Lancs.

# ARMCHAIR REFLECTIONS

by the "Dreamer"

HE must have curtailment of soul, or a shrivelling understanding, who can read of that mighty aerial battle on the Somme and not feel the blood course at increased speed through his arteries. Oh, that some photographer, braving the flying bullets, may have taken a film of it, even though at a great distance! For it is something new in warfare, something of which most of this generation failed to dream of as a possibility, only a decade ago.

Ten years ago the conquest of the air was progressing slowly, but ten years ago the picture of 70 or so aeroplanes meeting in bloody battle over but a few square miles of country, and only a few thousand feet in the air, that all at hand might view, was so fantastic as to be beyond the witchery of ordinary brains to visualise.

Yet now that it has happened, it needs no gazing into crystal globe to magnetise the imagination into condition of subtle, physical sensibility, endowing power to reconstruct even from the meagre reports available, a picture true in substance and potential in fact. Passively receptive of impressions, I have but to close my eyes to have a delineation of the evolutions conveyed to me equivalent to the visions of a camera-obscura. Above me is the blue dome of heaven, itself desecrated by mundane progress in that its ether must respond to the crackling of wireless telegraphy, conveying by and through its ethereal body, messages of prospective death.

Around me, so far as eye can reach, the earth is torn and scarred as by the upheaval of some mighty subterranean agitation. Ditches and conduits, hollows and trenches, a disturbment of the whole topsoil and subsoil as though the plough of a modern Goliath had passed that way bent on the refiguration of the landscape. Pre-existing woods and forests are now but as a garnered cornfield, their timberous stubble standing gaunt and desolate. Hills have been swept away in their entirety; valleys exist where before there were none. The horizon is broken by silhouetted ruined churches and homesteads. And in all that vast panorama, not one living soul of all those responsible for this casting down of the beautiful in Nature and the glories of man's handiwork in his sane moments, can be seen.

Incessantly, apparently from out the bowels of the earth, there leap flashes of fire and smoke. The ground trembles at the shock, the air tremors deal staggering blows, the roar is thundrous in its reverberations. At intervals, kite balloons are maintaining their positions, slowly swaying from side to side in the breeze, their occupants, sole visible presence of humanity, keeping keen observation.

Wireless vibrates abroad the information, telephones voice the news, a whole fleet of enemy aeroplanes are speeding in our direction. Swift from the ground our machines leap into the air to give battle, meeting their opponents a mile or so before our lines.

Not with any exhilarating clash of battle do these antagonists meet in mid-air, but silently except for the insistent hum of engines, they circle and swoop and manœuvre like giant seagulls, the smoke from exhausts tracing fantastic curves and figures in the air. Muffled poppings reach the ear, at times like the distant rolling of drums. Sometimes they are in staccato, sometimes in bursts, as the pilots scheme for positions enabling their gunners to get home with their weapons.

A Fokker is the first to get into difficulties. After a close operation in which the two machines appeared to revolve around in close proximity to a common axis, she veers away at an alarming angle, which suddenly increases to a headlong dive, belching flames and smoke as she crashes down, mercifully beyond our vision. Here is a British biplane which is set about by three of the enemy. It is fearsome odds, yet she fights on until like a winged partridge she flutters away, making giddy dives, recovering to sideslip first to port and then to starboard. A dive, she is gone. No, by almost a superhuman effort her pilot has flattened out to some extent and attempts a landing wing down. She lands at a terrific speed, runs a little way, and turns bodily over with a sickening crash.

Above the fight goes on. Again a machine is fluttering back somehow to friendly lines, there one is falling like a dead leaf, and all the time that incessant popping. Right in the foreground is one of our machines that has not fired a shot for possibly a few minutes—it seems 30 to the watchers—but is apparently doing all it can to get away from the remorseless two that beset it. Afraid? No. A gunner beyond the power to fire another shot, and two enemy gunners mercilessly emptying drum after drum into one that cannot reply. Suddenly, head down as straight as ever fell rocket stick she goes, engine full out. Seconds only, and her enemies are left far above, their duty done.

But not to pile up below. Once clear, her pilot flattens gently out, and returns to earth with his gruesome burden. It was but an evolution to get clear when put out of action.

Brave riders of the air, who fight at fearful altitudes without one thought of the space beneath you, intent only on doing your duty. Brave mothers and wives who patiently wait at home to conjure up in your minds pictures such as the foregoing.

Death. Ah, yes, I know there must be death. It seems an unwritten law in this chequered existence which we call life, that no one person can have pleasure except at the cost of sorrow to others. It seems, sometimes, that it were almost impossible for one to live, except by the death of another. Yet Kin of yours, and Kith of mine, not one of our lost ones but have done far more good in dying for England, that they could ever have done by living.



## AVIATION IN PARLIAMENT.

### Co-ordination of the Air Services.

SIR EDWIN CORNWALL, in the House of Commons on November 7th, asked whether the War Council have given full and special consideration to the question of the best means of co-ordinating, organising, and developing the Air Services, or whether the matter is left to the War Office, Admiralty, and Munitions Department to adopt whatever policy they individually may prefer?

The Prime Minister: The functions of the existing Air Board were explained to the House in May last by the then Under-Secretary of State for War and by my right hon. friend the Secretary of State for the Colonies, and included the task of organising and co-ordinating the supply of material for the two Air Services. His Majesty's Government have just received the first Report of the President of the Air Board, and it is receiving their most careful consideration.

Mr. Ashley: When will the decision of the Government be announced, as there is great feeling in the country about this matter?

The Prime Minister: Very soon.

Mr. Joynson-Hicks, on November 8th, asked the Prime Minister whether the time has come to confer further powers of an executive character on the Air Board, as foreshadowed at the time of its formation?

The Prime Minister: I would refer the hon. member to my reply yesterday to a question on the same subject. The Government has just received the first Report of the President of the Air Board, in which certain suggestions and recommendations are made, which are receiving our most careful consideration.

Major Hunt: Is the right hon. gentleman aware that the Air Board will not go on unless it has full power?

Mr. Joynson-Hicks: May I ask whether the Report has not been in nearly three weeks now, and whether he can expedite its consideration? It is very important.

The Prime Minister: No one is more alive to that than I am.

Mr. Billing asked the Prime Minister whether, in view of Lord Curzon's recent Report on the Air Service, thereby substantiating the prediction of the member for East Herts, he will consider the Paper dealing with the creation of an Air Ministry and an Imperial Air Service handed to him by that member on April 12th?

Mr. Bonar Law: Lord Curzon's Report is a confidential document, and I cannot accept the hon. member's description of it. The whole subject is being fully considered.

Mr. Billing: Would the right hon. gentleman mind inquiring whether the Paper which I handed to the Prime Minister personally has been considered, and whether, if it has not, it is going to be considered?

Mr. Bonar Law: I have no doubt that it received the consideration which it deserved.

Mr. Lynch: May I ask whether it is not a fact that the chances of the Allies in this war are being injured by putting up such a wretched organisation as the Air Board, and whether it is not time that this question was grappled with in some masculine spirit?

Mr. Bonar Law: That must be a matter of opinion, and I am not prepared to express one just now.

### Compensation for Air Raid Victims.

Mr. HOGGE asked the Prime Minister whether he will refer the cases of persons killed in this country as the result

of Zeppelin raids to a new Select Committee with a view to some compensation being given, especially to widows deprived of their husbands?

Sir E. Cornwall asked whether the Government is reconsidering the question of losses sustained by Zeppelin raids; and whether, at an early date, all such losses, both as regards property and persons, will be made a national liability?

The Prime Minister: The Government have this suggestion under consideration, but I cannot yet make a statement on the subject.

Sir E. Cornwall: Is the right hon. gentleman aware of the strong and growing feeling in the country in favour of some change of policy in regard to these matters?

The Prime Minister: Does the hon. gentleman mean in regard to loss of life?

Sir E. Cornwall: Both property and life.

### Prize Bounties Suggested.

MR. DENNISS asked the Prime Minister whether he will initiate legislation to put the aircraft and anti-aircraft services so far as attacks on Zeppelins are concerned in an analogous position to that of the Royal Navy as regards prize bounties?

The Prime Minister: This suggestion is worthy of consideration, and will receive it.

### The Anti-Aircraft Insurance Funds.

SIR E. CORNWALL asked the Chancellor of the Exchequer how much money is in the hands of the Government from anti-aircraft insurance; and when he will publish a balance sheet and profit and loss account?

The President of the Board of Trade (Mr. Runciman): I do not think that it would be in the public interest to publish any financial statement regarding the Government Aircraft Insurance Scheme at present.

### Warnings of Air Raids.

SIR J. LONSDALE asked the Secretary of State for the Home Department if it has now been decided to give public warning of the approach of hostile aircraft; and, if so, will he state the nature of the arrangements that have been made?

Mr. Samuel: Arrangements have been made by which theatres, music halls, cinemas, &c., will, if desired, be warned of an apprehended air raid, in order to afford an opportunity for the audience to disperse. For reasons which have already been explained to the House, it is not proposed to give a general public warning in the London area.

### Zeppelin Raids (Risk of Fire).

MR. BILLING, on November 9th, asked the Secretary of State for War whether he is aware that the risk of fire has been increased in many localities as the result of Zeppelin raids; and, seeing that expert firemen not engaged in certified occupations are now being called up, whether he will consider the advisability of exempting a sufficient number of expert firemen in those towns and villages which have no regular brigade and are in the direct track of Zeppelin raids?

Mr. Forster: That a new cause of risk of fire has arisen by the dropping of explosives from Zeppelin airships has not passed unobserved by either the military or civil authorities concerned. These authorities have discussed the question, and arrangements have been made in the direction suggested by the hon. member.

### Bombing a Railway Bridge.

AN Exchange message from Athens states that on November 9th two Greek and two Allied aeroplanes co-operated in wrecking the bridge over the Anguista, near Boya. The driver of a train filled with Bulgarian soldiers failed to see the damage in time and the train dashed into the river.

### Germany's Apology to Holland.

As was expected, Germany has again apologised to Holland for the straying of a Zeppelin, and also for shedding sundry articles. According to the German Chargé d'Affaires at The Hague, Main Headquarters state that the Zeppelin in question was an army airship, which, owing to a defect in

the motors and steering gear, was obliged to throw overboard two petrol-tanks. The commander, who had apparently quite lost his bearings, reported that the incident had occurred over Belgian territory. Main Headquarters, the Attaché added, would have offered its apologies sooner if it had known earlier that the airship had flown over Dutch territory.

### Germany Looking Ahead.

In an article discussing General Groner's appointment, and urging the German workmen to do their utmost, the *Dusseldorfer Generalanzeiger* concludes as follows:—The English have overtaken our original superiority in artillery, and it is worthy of notice that they are now engaged in constructing airships to approach or even overtake our advantage in this region also."

# AIRISMS

## FROM THE FOUR WINDS

IN the South Kensington Museum, Science Section, there are on exhibition several models of aeroplanes and gliders, besides a scale-model of a Zeppelin of the Schwaben type; and for those interested in research work, but who have been unable to manage an inspection of the wind tunnels used at the N.P.L. at Teddington, a model of a wind tunnel is in evidence. Although the Museum is nominally closed to the public, those seriously interested in aviation will, we believe, find no difficulty in gaining admission on application to the custodians of the Museum.

AN exhibition of war photographs at the Pavillon de Marsan, rue de Tivoli, Paris, is causing great interest. A conspicuous portion of the exhibition is formed by the collection of unique photographs taken by *l'Aeronautique Militaire*. Would it not be a good idea if our own authorities were to place on exhibition somewhere in London a selection of the photographs of the Front taken by our R.F.C. Observers? If a small entrance fee were charged and the proceeds devoted to the purchase of comforts—of which our flying men will be sorely in need now with the winter upon them—a great deal of good might result.

ALTHOUGH reports of the deeds of the military aviators of our brilliant French Allies reach us daily, comparatively little is heard of the good work done by the naval section of the French Air Forces. It should not, from this scarcity of news, be concluded that little is being accomplished by French naval airmen. Since a considerable number of French naval pilots are coming in for their share of honours, the list of them would be too long to publish in full, and when we choose to mention one out of the long list it is because he is well known to "FLIGHT" readers. We are referring to *Pilote Aviateur* Levasseur, who will be remembered as a brilliant pilot of Nieuport seaplanes. For exceptional services rendered in naval aviation M. Levasseur has been awarded the *Medaille Militaire*.

AVIATION in neutral countries is progressing apace. In Norway they are building M. Farmans at the rate of two a week, while at the Thulin works in Sweden, Moranes are being constructed. In Denmark the Army have purchased some Morane monoplanes, and are building Nieuport chasers and Vickers gun 'buses under licence. The Danish Navy is concentrating on seaplanes, of which several F.B.A.'s were purchased early in the war. These were not found particularly suitable, having a tendency to shed their wings in

mid-air, and the Navy are now building an improved type with two engines. The motors mostly used are Curtiss, with a few Mercedes transferred from interned German seaplanes. Quite a common-sense idea that.

It seems evident that the German naval people have got the wind up, and are fairly on the jump all the time, for we learn that a request was sent by the commander of a destroyer flotilla to the Danish pilots not to practise night flying over the portion of the Sound where the destroyers were patrolling, as they might otherwise be mistaken for English aircraft and potted at by the nervous crews.

LIEBKNECHT having been put safely under lock and key by the German autocratic rulers for having told the German nation some unpalatable truths, his successor, as representative in the Reichstag of one of the districts of Berlin, it is proposed should be Count Zeppelin.

A TEAM of the R.F.C. had a bout with the police at Richmond last week, but it was nothing more serious than a football match, the Solicitor-General, who was accompanied by Lady Cave, kicking off for the contest.

Good results should accrue to the cause from the work of the Parliamentary Air Committee, as it appears to be obtaining more adherents as it goes along. Moreover, the wide support given is of an enlightened character and not of the order which Mr. Justice Darling satirised in Court the other day when he remarked: "My slight studies in Parliamentary procedure lead me to think that if you can convince one man certain others will follow. I believe shepherds have noticed something similar."

THE attraction of the annual November 9th procession from the Mansion House to Charing Cross, back to the City via the Law Courts and Thames Embankment—judging by the cheering—was the British aeroplane, the captured German aeroplane and gun, and the R.N.A.S. and R.F.C. boys. The procession also included the new Lord Mayor, who was "Dunn" both at the start and finish.

HARD fighting is being put in and great sacrifices made by the Germans in Roumania to obtain command of the great Danube bridge at Czernavoda, which seems strange, in face of their claim at the start of the Roumanian activities of having entirely destroyed this highly important link by means of bombs from Zeppelins. Perhaps, as their veracity is such an axiom amongst nations, they hoped our new Allies would accept their statement without question and not bother to look for themselves and so give them easy passage.

OFFICER: "What arrangements have you made in case Zeppelins come?"

SERGEANT: "If any bombs are dropped on the 'uts, sir, the camp will be roused by three blasts on a whistle."—*Punch*.

No wonder the price of glass is going up by leaps and bounds. According to a London Borough Council report, after the recent Zeppelin raid 14 tons of broken glass were swept up from the streets.

ACCORDING to the *Horological Journal*, among the relics saved from one of the Zeppelins recently destroyed in this country was the commander's gold watch. It was considerably damaged, but the engraved inscription within the outer case remained, and read "Made in England." Sounds a bit ironical, but perhaps, after all, the commander only came over to have his watch overhauled.

THE recommendations in the Air Board's report are, according to Mr. Asquith, "receiving careful consideration." He must get a move on soon, as there are sanguine folk around who look to the war being over now in a couple of years.



The Parliamentary Air Committee follow the smoke-trail from the House yard to the Aircraft Company's works, &c., on a visit of inspection last week.



ANYWAY, it is pretty certain the Board will not see it through without the asked-for extension of powers is pretty promptly granted.

FLIGHT-COMMANDER ALBERT BALL, whose very remarkable exploits were recently published in *FLIGHT*, is to be presented with the honorary freedom of the City of Nottingham, of which he is a native. The honour is the more appropriate as his father has filled the Mayoral chair.

THE idea of Prize Bounties for the Aircraft Services, upon similar lines to the Royal Navy, is catching on. Even to Mr. Asquith's official mind it is a suggestion worthy of consideration, and will receive it. Which, we hope, carries with it a different construction to the intended meaning in an answer to another M.P.'s question, viz., that his suggestions had no doubt "received the attention they deserved."

In the Prize Court last week one of the methods of protecting German mine-layers, whilst engaged in their hazardous duties, emerged. It was over a bounty claim by a British Squadron for the destruction of the German mine-layer "Meteor." As a fact the latter had been blown up by its German crew, when they found escape from the squadron impossible, they taking refuge in a Swedish vessel near by. The denouement was the result of the British squadron having been kept under observation by German airships all the time and its movements communicated to the "Meteor," so that when all escape was barred the latter was able to commit Hara-Kiri. £655 was awarded.

WHAT a commentary upon the bulldogism of our air pilots is their record in the now historical mid-air fight of last week. In the descriptions emanating from all quarters the same note is struck, and undoubtedly brave as are their German opponents in the air, the palm for calm self-confidence and superiority in meeting the German aircraft remains with our R.F.C. men. Possibly no more incisive summary of the *sang froid* displayed by the units of our thirty machine phalanx could be evolved than the final clause of an article from the correspondent of the Havas agency at Amiens. His considered tribute to our flyers is that "The British airmen, who regarded the fight as merely an incident of their journey, continued their way to the invaded territory, and after having attained their objective returned to their lines." Truly a tabloid summary of the methods in the British Army.

### TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT's" precursor and sister journal) of November, 1906. "FLIGHT" was founded in 1908.

#### A "HILL CLIMB" FOR BALLOONS.

A novel event is being organised in the United States, in which balloons are to compete against motor cars in a "hill climb" up Mount Washington, in the White Mountains. The balloons and motor cars are to start from the bottom of the mountain, and the competitor who first touches a house at the summit is to receive a prize of \$1,000, those who arrive subsequently getting smaller amounts. If the wind is exactly the right way it is probable that the balloons will win in a canter (if one can imagine balloons in a canter), but if the wind is in any other direction, we fear it will be impossible to induce the balloons to face the ordeal.

#### M. SANTOS DUMONT AFFORDS HOSPITALITY TO THE BLÉRIOT MACHINE.

A strangely designed flying machine, which we have illustrated in our pages, designed by M. Blériot, who has been experimenting with it on the Lake D'Enghien, has gone on a visit to M. Santos Dumont. M. Blériot has come to the conclusion it would be much better to mount it on wheels and experiment in the way that M. Dumont does, and as he has no place available for the purpose, he wrote to M. Santos Dumont to ask if he would allow him to use his aerodrome at Neuilly. M. Santos Dumont, who is very generous and not at all jealous of other inventors, at once agreed, and the next experiments with the Blériot machine will accordingly, it is to be presumed, also take place at Neuilly.

#### THE "VILLE DE PARIS" AIRSHIP.

M. Deutsch's great airship, the "Ville de Paris," made its first serious attempt at flight on Sunday last, and with the

worst of luck. Starting from the shed at Sartrouville at half-past ten in the morning with four passengers up, and M. Surcouf in command, it crossed the Seine moving very satisfactorily, till when above the Forest of St. Germain the guide-rope caught in a tree. The aeronauts tugged away at it manfully till they succeeded in pulling it loose, but the result was apparently to confer upon the great airship the dangerous buck-jumping movement, which, when once started, is so difficult to get over, and it became absolutely unmanageable. Making a wild swoop downwards it crashed through the tops of the trees, tearing off branches and of course injuring itself in the process. Finally it came to earth in a large cabbage field about 12 o'clock midday, where it was subjected to further damage from the high wind blowing, which, of course, forced the gas-vessel over towards the ground, and interfered with the process of deflating it.

#### M. SANTOS DUMONT AND THE DEUTSCH-ARCHDEACON PRIZE.

Even last week M. Santos Dumont evidently felt confident of being able to maintain his machine in the air for a considerable time, for he went to the Aero Club and formally entered himself for a trial for the Deutsch-Archdeacon Prize in accordance with the rules, selecting two days—Friday and Saturday last—for making the attempt, paying his entrance fee of 50 francs per day. He selected Bagatelle as the scene for the attempt, but unfortunately the Superintendent of the Bois de Boulogne was afraid that too large a crowd would gather, and the trial was accordingly postponed.

#### M. SANTOS DUMONT ACHIEVES A RECORD.

On Monday, however, M. Santos Dumont did conduct a series of experiments, and achieved a triumph which, as far as actual accomplishment is concerned, may be regarded as having thrown his prior achievements into the shade, for he actually maintained an equal and uniform flight for a distance of 220 metres (practically 240 yards) without touching the ground, 6 metres, or nearly 20 ft., above it, and travelling at—and that, perhaps, is as important a point as any—the comparatively low speed, under such circumstances, of about 25 miles per hour.

M. Dumont appeared to have the aeroplane fully under control, and had not the presence of a batch of interested spectators straight in the path he was pursuing considerably shaken his nerve for a moment, there is every reason to believe that he would have remained considerably longer in the air, and perhaps even have succeeded in turning round and recovering his starting-point.

By his performance of Monday, M. Santos Dumont was the winner of two prizes, one for 100 francs for the first aeroplane to fly over 60 metres, and another of 1,500 francs for the first to cover not less than 100 metres without touching the ground. M. Santos Dumont states that he intends to divide both the prizes amongst his three assistant mechanics.

#### NAVIGABLE AIRSHIP RACE, 1908.

Our contemporary, *Le Matin*, is proposing to organise for 1908 an open event for airships of the navigable balloon type, to be held from Paris to London, £10,000 being already offered for prizes. Of this amount £4,000 is being offered by the *Matin* and £2,000 each by the Marquis De Dion, M. Charley and M. Clement.



AN ECHO OF "L.15."—One of the 353 gold medals given by the late Lord Mayor, Sir Charles Cheers Wakefield, to General Headquarters, Home Forces, for distribution to that number of officers and men who were concerned in the defensive arrangements when "L.15" was brought down.

# Personals.

## Casualties.

Second Lieutenant ALAN VICTOR CAIN, Hampshire Regiment, who was killed on October 18th, aged 24, was the younger son of Mr. H. F. Cain, of Hove, Sussex, and Staple Inn, London. Educated at Herne Bay College, he became in 1913 a Professional Associate of the Surveyors' Institution, and held an appointment under the Hampshire County Council at the Castle, Winchester. Immediately after the outbreak of the war he enlisted in the Hampshire Carabiniers, and served with them until February, 1915, when he received a commission in the Special Reserve of Officers. He fought in Gallipoli, and while there served as an observer in the R.N.A.S. He was subsequently invalided home. From July last until he fell he served at the front with the Hampshire Regiment.

Lieutenant EDWARD MERVYN CARRÉ, R.F.C., who was killed on October 16th, aged 22, was the youngest son of the Rev. Arthur A. Carré and Mrs. Carré, of the Rectory, Smarden, Kent. Educated at Christ's Hospital from 1903 to 1910, he left as Deputy Grecian and entered the College of the Resurrection, Mirfield, and in 1912 matriculated at Leeds University, whence he obtained an Honour Degree in Classics. On the outbreak of war he joined the Artists' Rifles and served abroad, receiving a commission in the Lincolnshire Regiment in March, 1915. Being promoted lieutenant, he was transferred to the Royal Flying Corps in May last. His eldest brother, Maurice Tennant Carré, Australian Infantry, was killed at Lone Pine on September 2nd, 1915. Two remaining brothers, Captain M. H. Carré, M.C., and Second Lieutenant G. T. Carré, are serving in the Royal West Kent Regiment, and have both been twice wounded.

Second Lieutenant JOHN A. DAVY, R.F.C., aged 18, who on the 8th inst., at Didcot, Berks, was killed as the result of

an accident whilst flying, was the only son of John H. H. Davy, of "Nathalia," 15, West Hill Road, East Putney.

Lieutenant GEORGE EDWARD GILES, R.F.C. (killed whilst flying on duty on November 11th), was only son of Major and Mrs. G. D. Giles, of Douglas Lodge, Newmarket, and grandson of the late Mr. George Barclay, of Coates Crescent, Edinburgh. At the time of the accident that caused his death he was pilot of the machine. He had his Army rank of Lieutenant in August last year, and was gazetted Assistant Equipment Officer, Royal Flying Corps, in June.

Flight Sub-Lieutenant WILLIAM STEWART STEWART, R.N.A.S., elder son of the late J. F. Tarratt and Mrs. Henry Rogers, of Ellary, Argyllshire, aged 19, was killed on November 8th as the result of an accident while flying on duty.

## Missing.

Lord LUCAS, Yeomanry and R.F.C., at one time a Cabinet Minister, who became an officer in the R.F.C., was last week reported missing. He was serving with the R.F.C. in France, and made a flight over the German lines the previous Saturday. He did not return from this flight, and so far nothing has been heard of him or his machine. Lord Lucas was wounded during the South African War, in which he was acting as a correspondent of the *Times*. As a result of his wounds his leg had to be amputated below the knee. During the first few months of the present war, when a member of the Cabinet, he held the office of President of the Board of Agriculture. On the formation of the Coalition in May of last year, he was one of the Ministers who retired. He immediately gave up political work and joined the Royal Flying Corps, although over the standard age (for this branch of the service) of 30. He soon gained his pilot's certificate and was sent to Egypt, where he did a good deal of flying. After a time he came back



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.  
A batch of pupils who have recently taken their Royal Aero Club pilot's certificates at the Hall School, Hendon.—(1) Sergt. G. W. Cottrell-Jones, Messrs. (2) F. J. Clegg, (3) J. G. Cowell, (4) J. Cordner, (5) Douglas Stamps, (6) P. C. Rayne, (7) Frank Russell, (8) E. C. Orton, (9) A. D. Gudgeon, (10) Grahame-Davies, (11) F. Worswick, (12) Lambert Barton, (13) S. Cownie, (14) H. E. Duncan.



to England, and was for some months engaged in instructing recruits for the Flying Corps. A few months ago, while he was coaching an air pilot, his machine dived and the pilot was killed, but Lord Lucas escaped. Recently he went out to France for the life of greater activity which he preferred. He is 40 years of age, and unmarried.

**Married and to be Married.**

The marriage of Captain EDWARD NOEL CLIFTON, Coldstream Guards and R.F.C., only son of Mr. and Mrs. Clifton, of 12, Cambridge Square, to Miss NANCIE VERA NICOLSON, daughter of Mr. J. Nicolson, of Hampstead, took place on the 8th inst. at St. Paul's, Knightsbridge. Mr. T. D. Spenser, Coldstream Guards, was best man, and Captain W. L. Robinson, V.C., Lieutenant F. Sowrey, D.S.O., and Captain Holmes, all of the Royal Flying Corps, and Captain Finch, Rifle Brigade, acted as ushers.

The marriage of Mr. SYDNEY PICKLES, son of Mr. M. P. Pickles, of Australia, and Miss A. R. E. MARKS, daughter of Mr. Ritchie Marks, of Hampstead, N.W., took place quietly at St. James's, Piccadilly, W., on November 15th.

The marriage of Lieutenant ROCKINGHAM CONYERS GILL, R.G.A. and R.F.C., elder son of Mr. and Mrs. Rockingham Gill, of Singlerose, Cole Park, Twickenham, and the Manor of Treverbyn, Cornwall, and CHRISTINA DOLORES COURT TREATT, daughter of Mr. and Mrs. R. Court Treatt, of 6, Nevers Road, S.W., and the Mill House, Elstead, Surrey, will take place at St. Cuthbert's, Philbeach Gardens, on December 9th, at 12 o'clock. Friends will be welcome at the church.

A marriage has been arranged between Lieutenant H. D. WHITELAW WILSON, R.F.C., eldest son of Mr. and Mrs. J. Whitelaw Wilson, of Belgrano, Buenos Aires, and MARGERY, eldest daughter of Mr. and Mrs. CHAS. THOROWGOOD, "San Remo," Haywards Heath, Sussex.

**Items.**

Second Lieutenant F. W. GRIFFITHS, R.F.C., of Caxton Road, Wood Green, has been taken prisoner, and is now in East Prussia. For some time he was on the "missing" list. His parents have now received a letter from him.



**THE ROLL OF HONOUR.**

**Reported by the Admiralty:—**

**Accidentally Killed.**

Flight-Sub-Lieut. F. A. R. Malet, R.N.

**Died of Injuries.**

Flight-Sub-Lieut. W. S. Stewart, R.N.

**Accidentally Injured.**

Prob. Flight-Sub-Lieut. W. A. Curtis, R.N.

**Officially reported a Prisoner of War.**

Flight-Lieut. G. G. G. Hodge, R.N.

**Reported by the War Office:—**

**Killed.**

2nd Lieut. F. P. Kane, R.F.C.

2nd Lieut. J. Turk, R.F.C.

**Died of Wounds.**

9882 1st Air-Mech. F. Dearing, R.F.C.

15699 2nd Air-Mech. V. Brazier, R.F.C.

34555 2nd Air-Mech. S. Du Mont, R.F.C.

17243 2nd Air-Mech. W. Wiltshire, R.F.C.

**Wounded.**

Capt. G. D. Hill, Hussars and R.F.C.

Lieut. C. N. Jones, Sherwood For., attd. R.F.C.

2nd Lieut. R. H. Wallace, Yeomanry and R.F.C.

2nd Lieut. C. E. Ward, R.F.C.

Lieut. G. H. Wood, R.F.C.

1491 Sergt. S. Cockerell, R.F.C.

5077 2nd Air-Mech. J. L. Mole, R.F.C.

10024 2nd Air-Mech. F. W. Kettle, R.F.C.

1110 Corpl. A. Rideout, R.F.C.

6527 Corpl. R. B. Bolton, R.F.C.

12105 1st Air-Mech. P. Daley, R.F.C.

7429 1st Air-Mech. C. Gall, R.F.C.

27882 2nd Air-Mech. J. H. Harrobin, R.F.C.

13719 2nd Air-Mech. W. Lamb, R.F.C.

**Previously reported Missing, now reported Wounded and Prisoners of War in German hands.**

2nd Lieut. F. H. Bowyer, Queen's (R.W. Surrey), attd. R.F.C.

2nd Lieut. C. Elphinston, R.F.C.

2nd Lieut. F. A. A. Hewson, Border, attd. R.F.C.

Lieut. G. Klingenstein, R.F.C.

2nd Lieut. J. C. Taylor, K.O. Scottish Bord. and R.F.C.

**Previously reported Missing, now reported Prisoners of War in German hands.**

2nd Lieut. J. W. Bowring, S. Lancs., attd. R.F.C.

Lieut. L. R. Briggs, London and R.F.C.

2nd Lieut. E. Burton, R.E. and R.F.C.

2nd Lieut. D. S. Cairns, Rifle Brig. and R.F.C.

2nd Lieut. W. R. C. Carmichael, Highland L.I. and R.F.C.

Lieut. A. T. Easom, R.F.C.

2nd Lieut. W. J. Gray, R.F.C.

2nd Lieut. F. W. Griffiths, Middlesex and R.F.C.

Lieut. H. F. Mase, R.F.C.

2nd Lieut. A. L. Pinkerton, R.F.A. and R.F.C.

2nd Lieut. F. D. H. Sams, R.F.C.

2nd Lieut. M. H. Strange, R. Fus. and R.F.C.

2nd Lieut. J. L. Tibbetts, R.F.C.

2nd Lieut. K. E. Tulloch, R.F.C.

2nd Lieut. B. M. Wainwright, R.F.C.

Capt. R. E. Wilson, Hampshire and R.F.C.

3389 Sergt. B. Irwin, R.F.C.

6537 1st Air-Mech. L. O. Law, R.F.C.

**Prisoner of War in Turkish hands.**

Capt. C. L. Woolley, R.F.A., attd. R.F.C.

**Missing.**

Lieut. A. Anderson, Connaught Rangers, attd. R.F.C.

2nd Lieut. G. H. Bentham, E. Surrey, attd. R.F.C.

2nd Lieut. L. C. L. Cook, A.S.C., attd. R.F.C.

Lieut. T. M. Johns, Welsh, attd. R.F.C.

2nd Lieut. W. E. Knowlden, Border, attd. R.F.C.

Capt. Lord Lucas, Yeomanry and R.F.C.

2nd Lieut. S. W. Mann, R.F.C.

2nd Lieut. H. L. Morgan, Border.

Lieut. G. H. Nicholson, R.F.C.

2nd Lieut. B. W. A. Ordish, R.F.C.

Capt. A. J. M. Pemberton, M.C., Leinster, attd. R.F.C.

Lieut. J. M. J. Spencer, Northumberland F. and R.F.C.

2nd Lieut. A. E. Wynn, R.F.C.

4943 1st Air-Mech. B. C. Digby, R.F.C.

649 Flight-Sergt. E. Haxton, R.F.C.

3023 Corpl. B. G. F. Jeffs, R.F.C.

3467 1st Air-Mech. H. A. Harding, R.F.C.

**Previously reported believed Taken Prisoners at Kut-el-Amara, now reported Prisoners of War.**

7373 2nd Cl. Air Mech. R. G. Nickolls, R.F.C.

7870 2nd Cl. Air Mech. S. J. Wells, R.F.C.



**A One-Legged Pilot.**

PAUL ALBERT PIERRE TARASCON, who has been mentioned in the French *communiqué* for bringing down his seventh German, has the distinction of having an artificial leg. **Carpentier Wins Another Award.**

For his aerial work in connection with the taking of Fort Douaumont, Georges Carpentier, who has been mentioned three times in despatches, has been awarded the *Medaille Militaire*.

**A Salonica Zeppelin Echo.**

It is reported from Salonica that it has recently transpired that two men belonging to the crew of the Zeppelin which was brought down in the outskirts of Salonica on May 5th managed, although wounded, to effect their escape from the marshes of the estuary of the Vardar, where the airship fell. They obtained refuge at the village of Kulakia, east of the Vardar, where they were succoured, and eventually got over the frontier into Bulgaria.

# AIRCRAFT WORK AT THE FRONT.

## OFFICIAL INFORMATION.

### British.

*Admiralty, November 10th.*  
"An attack was carried out in the early hours of this morning on the harbour and submarine shelters at Ostend and Zeebrugge by a squadron of naval aeroplanes. A great weight of bombs was dropped with satisfactory results."

*General Headquarters, November 10th, 9.49 p.m.*  
"As the result of the improvement in the weather there was great aerial activity yesterday and much useful work done. Many bombing raids were carried out on the enemy's communications, billets, and stores. Air fighting was almost continuous. One of our squadrons of 30 machines encountered a squadron of from 30 to 40 machines, and an aerial battle took place. The enemy's squadron was broken up and dispersed. Six of his machines were seen to commence to fall out of control, but owing to the severity of the fighting it was not possible to watch them to the ground. As a result of other fights nine more hostile machines were driven down in a damaged condition. Three of these are known to have been destroyed. A hostile kite balloon was also attacked and sent down in flames."

"Seven of our machines are missing."

*Admiralty, November 11th.*  
"With reference to the attack on Ostend and Zeebrugge, carried out by a squadron of naval aeroplanes on the 10th inst., one of our machines—Flight-Lieutenant Geoffrey G. G. Hodge, R.N.—has failed to return. A Berlin official report states that he has been taken prisoner. All the other machines returned safely."

*General Headquarters, November 11th, 9.57 p.m.*  
"Yesterday there was again considerable activity in the air. During the day bombing raids were continued with effect against enemy hutments, aerodromes, and headquarters, and at night the enemy's stations and trains were successfully attacked. Two trains were hit with bombs, while a third was set on fire, and a number of explosions followed. In the course of numerous air fights three enemy machines were destroyed, and a fourth was forced to land in our lines. Many others were driven down in a damaged condition. One of our machines is missing."

*Admiralty, November 12th.*  
"On November 10th a squadron of naval aeroplanes, operating against the Bulgarian coast, successfully bombarded enemy aerodromes and stores at Drama, Porna and Angistra. Excellent results were achieved."

"The bombardment of the enemy's steel works at Volklungen by British aeroplanes referred to in the French *communiqué* of November 11th was carried out by a squadron of the Royal Naval Air Service."

*War Office, November 12th.*  
"*Salonica.*—Enemy aerodromes at Drama and camps near Porna were successfully bombed by our naval aircraft."

*Admiralty, November 13th.*  
"At noon yesterday (12th inst.) a squadron of naval aeroplanes carried out an attack on the harbour at Ostend. A considerable number of bombs were dropped on the Atelier de la Marine (naval workshops) and on war vessels in the harbour."

*War Office, November 13th.*  
"*Egypt.*—The G.O.C.-in-C., Egypt, reports two successful air attacks on Maghdaba and Birsaba. At Maghdaba the enemy's camp and store sheds were bombed, and a number of direct hits caused much damage. At Birsaba a 100-lb. bomb hit the aerodrome; an Aviatik whilst being brought from the hangar was directly hit, the hangar also being damaged. Bombs were dropped on the railway station, sidings, and rolling stock, which suffered much damage. Two hostile Fokkers were driven down in a damaged condition. Bombs equivalent to a ton of high explosive were dropped during the two raids. All our machines have returned safely in spite of very heavy fire from anti-aircraft guns and attacks of enemy aircraft."

"*Mesopotamia.*—On November 7th two British aeroplanes bombarded, with good results, the headquarters of some Turkish irregulars near Al Ain, on the Euphrates, 45 miles west of Nasiriyeh."

"*Salonica.*—On the Doiran front our aircraft carried out reconnaissances, during which three enemy aeroplanes were forced to descend behind their lines."

### French.

*Paris, November 6th.*  
"In telegrams of yesterday's date the Germans declare that they have shelled Rheims as reprisals for an alleged bombardment by the French of inhabited places behind the German front. At no time have the people who are French been subjected to a bombardment by French airmen, who strictly follow the instructions they receive and only drop bombs on military establishments, bivouacs, or enemy railway lines. The truth is that the Germans have fired at Rheims since October 26th, the day following their defeat at Verdun, and that out of revenge they continued the bombardment on October 27th, 28th and 29th, and November 4th, in proportion as their defeat was aggravated. That is the truth, and all other pretexts which they invoke to justify their barbarous acts are absolutely lies."

"German aircraft dropped several incendiary bombs on Nancy yesterday towards 10 p.m. There were no victims, and no damage was done."

*Paris, November 7th.*  
"*Salonica.*—Our aeroplanes bombarded several localities in the valley of the Vardar. An enemy aeroplane was brought down near Monastir during a fight by one of our pilots."

*Paris, November 8th.*  
"North-west of Pont-à-Mousson two enemy aeroplanes were brought down in air fights by our pilots. One fell near Vicville-en-Haye and the other in the direction of Vilcey-sur-Trey."

"On Monday night eight of our bombarding aeroplanes dropped over a ton of projectiles on the aerodrome of Frescaty, and a similar quantity on the military railway station of Chambley. The objectives were struck."

"*Salonica.*—Our aeroplanes bombarded the military camps in the region north of Monastir."

*Paris, November 10th.*  
"There was great reciprocal aviation activity yesterday. Our aeroplanes engaged in 77 fights, in the course of which a Fokker biplane was brought down in our lines near Auberive, a Rumler was forced to descend near St. Hilaire-le-Grand (the two aviators are prisoners), another machine was certainly brought down, and seven came down in the German lines on the Somme."

"Our bombing squadrons dropped 700 bombs or shells on the communications and cantonments behind the front, especially on the railway stations of Lens and Vouziers, and 270 bombs on the blast furnaces of Algrange, near Thionville, the aerodrome of Dieuse, the railway station of Courcelles-sur-Nied, and the aircraft sheds of Frescaty."

"*Salonica.*—British aeroplanes bombarded the stations of Porna and Puljovo."

*Paris, November 11th.*  
"During the day of November 10th three German machines were brought down by our pilots in the Somme region. Two of them were brought down by Lieutenant Guynemer, one south of Nesles and the other near Morcourt. This brings up to 21 the number of enemy machines destroyed up to date by this pilot. Two other German aeroplanes, attacked by ours, fell smashed to the ground, the first in the Champagne, north of Auberive, and the second in Lorraine, south of the Gremecey Forest, where it fell in flames. During the night of November 9th-10th our bombarding squadrons dropped 2,205 kilos. (4,860 lb.) of projectiles on the stations, bivouacs, and enemy parks on the Somme front. One of our aeroplanes flew over the Rhine between Neuf Brisach and Strassbourg, and dropped six bombs on the station of Offenburg, which suffered important damage."

"Between 10 and 11 o'clock in the morning of November 10th a group of 17 British aeroplanes bombarded the steel works of Focklingen (north-west of Sarrebruck); 1,000 kilogrammes (2,204 lb.) of projectiles were dropped on the buildings, which suffered great damage. In the course of the operation the British aeroplanes fought several actions against enemy machines, of which three were felled."

"The following night, between 8 and 9 o'clock, eight of our aeroplanes carried out a fresh bombardment of these factories, in the course of which 1,600 kilogrammes of projectiles were dropped. Several fires were observed. All our machines returned safely."

"During the night of November 10th-11th our squadrons



drenched with projectiles the stations of Ham, St. Quentin, Tergnier, Nesle (in the Somme region), the aerodrome of Dieuze, the blast furnaces of Romsbach, the aeroplane hangars of Frescaty, and the blast furnaces of Hagondange. These operations caused great damage to the enemy, and several explosions and fires were observed.

"German aeroplanes during the night of November 10th-11th bombarded several French towns. Nancy and Lunéville received projectiles which caused no damage and inflicted no casualties. The open town of Amiens was also bombarded on different occasions during the same night. Nine persons of the civilian population were killed and 27 were injured."

*Paris, November 12th.*

"Lieut. Herteux yesterday brought down his twelfth aeroplane. The German machine fell in flames to the west of Saily Saillisel. It is confirmed that Lieut. Deulin on Friday brought down his ninth enemy machine to the east of Péronne.

"It is confirmed that Adjutant Bonnefoy brought down on November 4th his fifth German machine."

*Paris, November 13th.*

"Nine bombarding aeroplanes and seven escorting planes of the British Royal Naval Air Service bombarded the blast furnaces and foundries of Saint Ingbert, north-east of Sarrebruck, in the basin of the Sarre. All the machines returned. Two German machines last night dropped bombs on Belfort. Five civilians were wounded."

**Russian.**

*Petrograd, November 3rd.*

"In the Caucasus on November 1st, two of our airmen bombarded the large Turkish encampments near Ishak-Majdany, north-west of Nurik, and near Tykolan, south-east of Cholik, and also two bridges on the Euphrates, near Sagan."

*Petrograd, November 8th.*

"In the wooded Carpathians, west of Tartarow, an aerial fight took place between one of our aeroplanes and an enemy machine. Our machine was brought down, and the airman, Sub-Lieutenant Lagutenko, perished. The condition of the observer, Non-Commissioned Officer Waitzman, is hopeless."

**Italian.**

*Rome, October 31st.*

"As the result of an aerial fight on the Carso, an enemy aeroplane was brought down in our lines. One of the two aviators was dead; the other was taken prisoner.

"*Albania.*—On October 29th hostile aircraft made a raid over the region of Klisura and the Lower Vojussa, dropping bombs without doing any damage.

"*Salonica.*—One enemy aeroplane, while reconnoitring, was shot down near the railway station of Akindzali, on the line Doiran-Demir Hissar. A Bulgarian detachment went forward to recover the machine, but was dispersed by the fire from our artillery, which completely destroyed the aeroplane."

*Rome, November 1st.*

"Numerous air fights took place, in the course of which two enemy aeroplanes were driven down. Fourteen Caproni battle-planes, escorted by Nieuport chasers, bombarded with marked success the railway stations of Nabresina, Dottegiano, and Scoppo, on the Carso. Our aviators were fired on by anti-aircraft guns and attacked by enemy aeroplanes, but all returned safely to our lines. Enemy aircraft dropped bombs in the Cordevole Valley, in the Upper Vanoi Valley, near Tolmezzo, and on villages on the Lower Isonzo. A few people were wounded, but no material damage was done."

*Rome, November 2nd.*

"Hostile aircraft dropped bombs on several villages of the Lower Isonzo. The casualties at Pieris were one soldier and a captain and four men of the Red Cross. A powerful squadron of sixteen Caproni battle-planes escorted by Nieuport machines, bombed enemy camps in the Frigido (Vippach) Valley with two tons of explosives. In spite of heavy fire from hostile anti-aircraft batteries, all the machines returned in safety."

*Rome, November 3rd.*

"During a hostile air raid on the night of November 1st-2nd over the Lower Isonzo, our guns brought down hydroplane 'L.75.' The officer pilot was killed."

*Rome, November 5th.*

"On the evening of November 4th enemy aircraft dropped bombs on Monfalcone without doing damage. Our guns brought down one of the aeroplanes in flames."

*Rome, November 8th.*

"Enemy aircraft dropped bombs on the usual localities on the Lower Isonzo, killing two people and wounding a few others.

"One of our seaplanes bombarded enemy works at Salvore point, at the entrance of Pirano Bay.

"Yesterday afternoon squadrons of Italian and French aircraft carried out an offensive reconnaissance on the enemy coast. Bombs were dropped with good results on the aviation station at Parenzo and on craft used for military purposes in the harbour of Cittanuova. In spite of the violent fire of the anti-aircraft defences and of a counter-attack by enemy seaplanes, all our machines returned safely.

"Enemy seaplanes dropped several bombs without any effect on some of our torpedo-boats, which also returned safely to their base."

*Rome, November 9th.*

"Enemy aircraft dropped bombs near Monfalcone, killing a man and wounding a few others."

*Rome, November 13th.*

"On the night of November 11th a squadron of enemy aeroplanes dropped bombs on Padua. A building where numerous women and children had taken refuge was destroyed, with the result that the greater part of them were killed. The number of dead ascertained already amounts to 60."

**Roumanian.**

*Bucharest, November 8th.*

"Enemy seaplanes attacked Sulina. One machine was brought down and captured, with its pilot and observer."

*Bucharest, November 9th.*

"In the upper valley of the Aseu our troops brought down an aeroplane of the Hindenburg type. We captured the pilot and observer."

**German.**

*Berlin, November 4th.*

"Nine enemy aeroplanes were shot down in aerial fights and by our defensive fire."

*Berlin, November 7th.*

"A German air squadron in a night bombing attack set on fire large ammunition depôts at Cerisy, south-west of Bray. Continuous and formidable detonations were felt as far as Quentin."

*Berlin, November 8th.*

"On Monday night a German air squadron attacked a French military camp in the valley of the Close, west of the Bois Ocessaire, and in the Bois Celestine, north of Cerisy, on the Somme. Good results were observed in the tents and barracks, where conflagrations broke out.

"On the same night another German squadron attacked the great ammunition station at Cérisy, where long goods trains were standing. This station, which is the centre of the French ammunition supply, and the surrounding ammunition depôts were set on fire. The flames spread to the whole of the big ammunition depôt, which was blown up by a series of explosions. The scene of the conflagration and the searchlight positions were attacked by our brave airmen with machine-guns, and great clouds of smoke were noticed over the place and were encountered by our airmen at a height of about 3,000 ft.

"Other German air squadrons on the same night bombed about 20 enemy positions behind the enemy's front where Russian soldiers were billeted. Numerous conflagrations were observed. The railway works near Preyart, Amiens and Longueau were damaged by bombs. On the line Amiens-Pont de Metz a bomb weighing 112 lb. destroyed a moving train."

*Berlin, November 10th.*

"The activity of aviators, which had been very lively throughout the day, was continued in the clear moonlit night. During the course of numerous air engagements we brought down 17 enemy machines, most of them on both sides of the Somme. Our squadrons repeated their effective attacks on railway stations, troop encampments, and munition dumps, especially in the region between Péronne and Amiens."

*Berlin, November 11th.*

"Clear autumn weather favoured the reciprocal artillery and aerial activity.

"Nine inhabitants of the occupied territory fell victims yesterday to the bomb attacks made by enemy aviators against villages behind our front. The military damage caused was slight. Ten enemy aeroplanes were brought down yesterday in aerial battles by our anti-aircraft guns."

## Austrian.

Vienna, November 1st.

"Italian airmen dropped numerous bombs on Duttouleo, Sesana, and Miramar, without causing noteworthy damage. Captain Schjenzel shot down a Caproni machine over Panzano Bay."

Vienna, November 3rd.

"Yesterday evening several of our seaplane squadrons attacked with good effect Cervignano, Ciorgo di Mogavo, Pioris, Grado, Adria, and works near Monfalcone. Numerous full hits were obtained on military objects and railway works at the above mentioned places and on a shed and aerodrome at Grado."

Vienna, November 4th.

"During the evening of the 3rd inst. a naval aeroplane squadron dropped numerous bombs upon military objects at San Canziano, Monfalcone, and the Adria Works."

Vienna, November 8th.

"Near Tartarow an Austro-Hungarian airman shot down a Russian Nieuport biplane."

"Yesterday afternoon enemy airmen bombed the towns of Rovigno, Parenzo, and Citta Nuova, without causing the least material damage. There were no casualties. Our airmen went up in pursuit, and shot down an enemy airman, who came down near some enemy torpedo-boats on the open sea. These were attacked with bombs by our airmen, and steamed off towards the enemy coast. The same evening an enemy airman unsuccessfully dropped bombs near Rimago. Our seaplanes successfully bombed military objects at Vermigliano, and returned safely."

## Bulgarian.

Sofia, November 8th.

"Enemy aviators displayed lively activity, but without effect, behind our front."

## BRITISH AIR WORK.

The following was issued by the Air Board on October 30th:—

"October 1st. *Hostile aircraft.*—On the evening of September 30th one of our patrols encountered many hostile machines. A formation of seven Rolands near Bapaume was dispersed, two of them being driven down out of control."

"On October 1st, Capt. 'A' drove down two patrolling machines out of control near Gommecourt. He afterwards waited and attacked three hostile machines which came up from a neighbouring aerodrome; he forced one to land and dispersed the remainder."

"Lieut. 'B' and Lieut. 'C,' when taking photographs, were attacked by seven Rolands. The attack was driven off with the assistance of two of our patrolling machines, who joined the fight. One of the Rolands fell in a nose-dive, and was seen to plunge to earth."

"October 10th.—Lieut. 'D' and Lieut. 'E' had six encounters between 7 and 8.45 a.m. whilst on artillery

patrol. In an encounter with three L.V.G.'s one German machine dived emitting clouds of smoke, having been engaged at 20 yards' range. The remaining machines declined close combat."

"Second Lieut. 'F,' in the course of an encounter with several hostile machines, had all the controls of his machine, with the exception of the rudder, shot away. His machine turned a somersault and was wrecked; the pilot was unhurt."

"*Bombing.*—A highly successful bombing raid was carried out against railway trains and stations at Queant, Cambrai and Bapaume at about 11 p.m. on the night of the 10th inst. A train entering Cambrai was attacked and wrecked, a bomb being observed to hit the first carriage behind the engine. The second bomb hit the station buildings, whereupon all the lights were extinguished."

"Second Lieut. 'G' fired a drum of ammunition from 1,400 ft. at a closed touring car. The car immediately stopped, and three people got out of it and ran away."

## THE MID-AIR BATTLE.

ONE of the most graphic pictures of the battle between 70 machines which took place on November 9th, is that by the *Times* correspondent at the British Headquarters. We reproduce this below, and further refer to it in a leaderette on page 992:—

"The German airmen have grown bolder than for a long time past. Evidently they have largely increased the number of their machines upon this front, and stung, doubtless, by the contempt into which their flying services had fallen even in the eyes of their own troops, they are making a more serious attempt to dispute the mastery with us than they have made this summer."

"That the Germans will continue to struggle desperately to regain some measure of the air supremacy—and of the self-respect—which they have lost, we must presume. The winter will probably see very bitter fighting, if not often battles on so grand a scale as that on November 9th. But all air fighting is now much closer and more savage than it has ever been before. The importance of air mastery has been more clearly demonstrated and the individual fighting skill immensely increased. With the greater speed of machines and greater cleverness in handling, the old leisurely combats are no more, when two machines might fly side by side and empty successive drums of ammunition each at the other. It is now a headlong plunge and a single shot; a dip and a swerve and another shot; a loop and a glimpse, and a single shot again, a duel swifter, more breathless and more reckless than any fighting ever was on earth or sea."

"In their new effort the Germans are copying our tactics exactly; and by 'ours' I mean those of the French as well as ourselves; for the flying services of the two armies work in such perfect harmony that they are to all intents one single service. Some of the things which have given us our air supremacy are of British initiation and some French; but we practise and use them in common and share equally the glory."

"It is a long time since the German initiated anything new in the air. Now, in his recrudescence of activity, he is doing his best to learn from us. He copies exactly our methods, formations, and air tactics. In the recent moon-

light nights especially, his airmen have been penetrating behind our lines, trying to bomb railheads and transport, and so forth; and individual Germans are even getting so bold as to do what we have done for the last four months, namely, fly low enough to use their machine guns on troops in trenches or on columns on the road. So far they are making little by it; and they are having a most exciting time."

"One of the chief evidences of the new activity has been the great aerial battle, wherein some 70 aeroplanes were engaged, which the official *communiqué* has already mentioned. It took place between 9 and 10 o'clock on the morning of November 9th, well over the German lines in the direction of Vaulx-Vraucourt, north-east of Bapaume, whither certain of our aeroplanes were bound on a bombing expedition. With them were fighting machines and scouts, making in all a fleet of 30 sail. Near the villa of Mory, just before reaching Vaulx-Vraucourt, they sighted an enemy squadron somewhat outnumbering themselves, the actual strength being something from 36 to 40 aeroplanes."

"We attacked at once. Some of our machines were flying at a higher level than the enemy, and they plunged headlong to join in the general engagement, which was fought at an average height of not much above 5,000 ft. Of the *mêlée* which followed it is impossible to get any coherent account, for no man in it had time or thought for anything except the enemy machines with which he was successively engaged; but for 20 minutes there raged among the clouds such a battle as the world has never seen before: an inextricable tangle of single combats, of darting, swirling machines, the air filled with the roar of 70 propellers and the chatter of guns."

"Four of our machines were lost, that is to say, that they were compelled to descend in German territory, a strong westerly wind drifting the battle as it raged more and more over enemy's soil. In the ships which came home, one brought a dead observer, and two others, with wounded pilots, had difficulty in beating up against the wind and landing in our lines."

"Of the enemy we know that six machines were sent to



earth, of which three are known to have crashed. What happened to the other three, beyond that they were falling out of control, is not known. In yet another the pilot was seen to be shot dead. What further casualties the enemy suffered he only is aware; but the best evidence that the victory was ours lies in the fact that the whole enemy formation was broken and scattered. The Germans fled for safety in all directions, leaving us in possession of the sky. Then we went on upon our business, we punctually dropped our bombs on the stores and ammunition depôts of Vaulx-Vraucourt, and then came home proudly flying in regular formation, no German daring to interfere.

"It is, of course, one drawback to the splendid audacity with which we carry the fighting always into the enemy's country that we cannot count his dead. We know only how many of our own machines do not come home, and how many of the enemy's machines have visibly crumpled and fallen, obviously wrecked or in flames. In such a fight as this—in every fight where more than a single aeroplane is engaged on either side—a victorious combatant cannot stop to watch the adversary who goes to earth to see if he is really

broken. Another opponent demands his instant attention; and of those birds which are winged and crippled but can just limp home, or of those others which carry their shot for a while and then fall dead, we learn nothing. And it is curious how large a part in this is played by the westerly wind which blows here for three-quarters of the year. Even when an east wind does blow here, it is seldom flying weather; so practically every battle is fought in a wind against which no disabled machine of ours can beat home, while the enemy has always his own soil below him and a wind in his favour.

"Taking this same day as an example, the official *communiqué* has told you that in all seven of our machines were missing, including the four in this great battle. Of German machines we know that we 'drove down' 15, including the six of this battle, 'in a damaged condition'; but how many others crawled home nursing wounds, or how many withdrew from the fighting in good order and then fell later, we have no way of telling. What we do know is that, continuing to run vastly greater risks than his men have yet learned to run, we daily inflict on the enemy heavier losses, counting those which are obvious alone, than we suffer."

## ◆ ◆ ◆ ◆ ◆ "MÜNCHAUSEN MÄRCHEN" UP TO DATE.

ALTHOUGH the tales told by returning Zeppelin commanders of their supposed doings have not been lacking in lurid details, apparently the German public desires more, and so the well-known Berlin firm of Ullstein and Co., the owners of the *Vossische Zeitung*, the *Berliner Zeitung am Mittag*, and other periodicals, have published a book entitled "Zeppelins over England," which they have copiously illustrated with horrific pictures of blazing and devastated English towns, factories, harbours and ships. "This book," says a correspondent of the *Daily Chronicle* who has reviewed it at considerable length, "apparently collects all the awful tales of calamity in all their absurdity, with which the German public have been regaled for the past 12 months. These we need not repeat. But there are new features as well, newer and spicier details of terrible destruction served up, from which a few extracts may be given. We note the glee with which the author does his work, the gloating over horrors, his howls of fiendish joy. Doubtless he knows his public."

"The author supposes himself in a Zeppelin, which has already reached the English coast, and has been appointed to operate between Yarmouth and Norwich. The Great Central Railway unites these two towns. The trains on this line travel relatively slowly, but on this night their pace was accelerated. It was 'flight, flight!' But above in the air there was something moving still more rapidly. Bursting bombs hailed on the railway stations, destroying, tearing. The metals rolled up like thin wire. A searchlight is turned on the Zeppelin, a bomb extinguishes it, and batteries which had fired in the light of the searchlight were silenced for ever."

"The Destruction goes its way along the line, which is torn up beyond recognition. A train approaches at racing speed. With thunderous crashing, which is heard above the droning of the air-screws, the locomotive pitches into the ruins, turns over, the train burns. British troops will not be transported on that line for some time to come. The German Death swings his scythe, and prepares himself for new blows. This is war—war which you would have. The starved, ruined Germany approaches you!"

"In Lincolnshire, proceeds our liar, railway stations, great stores, barracks were attended to. Bombs struck a remount depôt. Many hundreds of horses were killed, torn to pieces. 'There must be no pity for these horses. It is another blow for the British front. Do the British tacticians require horses to storm the trenches? One less trouble for our comrades on the Somme.'

"Another Zeppelin is approaching the Coast. 'Forward, yonder is England!' There is a ship below. Its three

slender smokestacks are visible. On this ship fell the first iron greeting. Badly injured, the stricken ship runs to the coast and is stranded. 'One ship less.' At the end of Spurn Head the lighthouse flames out. Crash down on it went a bomb, and the proud edifice toppled over and fell with loud tumult across the mole. 'One mark less to steer by!' And the loss is all the more keenly felt because of the difficulty of navigating the river up to Hull. The English Admiralty, of course, denies everything, as usual. Lighthouse? Nothing of the kind. That was a lame mule and a young, innocent child that the bomb fell on."

"Much savage gloating is gloated over Grimsby, which is alleged to have suffered terribly. 'Here in Grimsby are the most dangerous enemies of our U-boats—the fishermen, mine-sweepers, and the patrol boatmen, who sniff out the submarines.' Great execution was done among oil-tanks, on which incendiary bombs were dropped. We get the words of command which the commanders of the Zeppelins call out to their crews:—

"'Incendiary bombs!'

"'Quick fire!'

"And then columns of dense smoke and forked flame shoot up to the heavens. Munition factories burst in a million fragments. Their value is millions of pounds. 'Incendiary bombs! And in eight or ten places fire—a monstrous fire, lurid in the night. The place is bright as day. Panic! There underneath they are running wildly about, seeking to save themselves, seeking shelter. Close by is the railway station. One train after another streams out of the station, and a congested mass of people storms the building seeking flight. Hundreds, thousands!'

"Looking at the dense masses tightly squeezed together a horrible recollection dawns on the Zeppelin commander. The Zeppelin hovers over the station. Not very long ago in Carlsruhe there was a joyful festal multitude in the streets. The enemy bombs crashed down on innocent people, shattering, tearing, killing. Hundreds of children wallowed in their blood. Remember Carlsruhe! No, we are Germans, we are Huns, barbarians! We do not fight against children, and the commandant left the word of command unspoken!"

"After their night of terror, in which the entire Eastern Coast had burst into flames, the order was given 'Home-wards!' A fiery monster sprang up to the sky almost licking the clouds. It was their last bomb. 'The air seems to rotate, a current seizes the Zeppelin, shakes the gondolas, beats on the hull. The gigantic torch of fire is our signpost, and illuminates the great grey Zeppelin, which soars ever higher and higher, unapproachable as it stands out to sea.'

### French "Ace" Pilots.

Up to the present 20 French pilots have attained to "ace" rank by bringing down five enemy machines and thereby becoming entitled to have their name mentioned for each further machine they destroy.

### The American Escadrille.

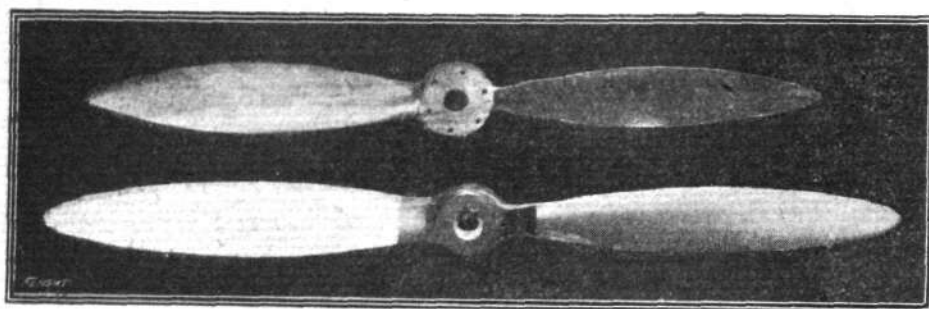
FURTHER information regarding the escadrille of American aviators who, as recorded in last week's FLIGHT,

are now stationed in the Somme, are given by Mr. Henry Wood, the United Press correspondent with the French Army. Their machines bear as a distinctive badge a Red Indian head. There are over 100 American volunteers in the French flying service, but the majority are under training. So far the casualties are three men killed—Chapman, Rockwell and Prince—and two wounded—Lieut. Thaw, who is again flying, and Bolsley, of Texas, who is injured for life.

## A REVERSIBLE TYPE OF PROPELLER.

ALTHOUGH the theory of propeller design is not yet thoroughly understood, such theories as exist being in many cases contradictory, the general trend may be said to be towards an application of the theory first advanced by Drzewiecki in 1882, and which was to

Kempston, Bedford, has been experimenting with air-screws of various shapes, all having one characteristic in common, however much they differ in details—i.e., they are reversible. In the accompanying illustrations are shown two of these propellers, one of which



Two of Mr. Austin's reversible propellers.

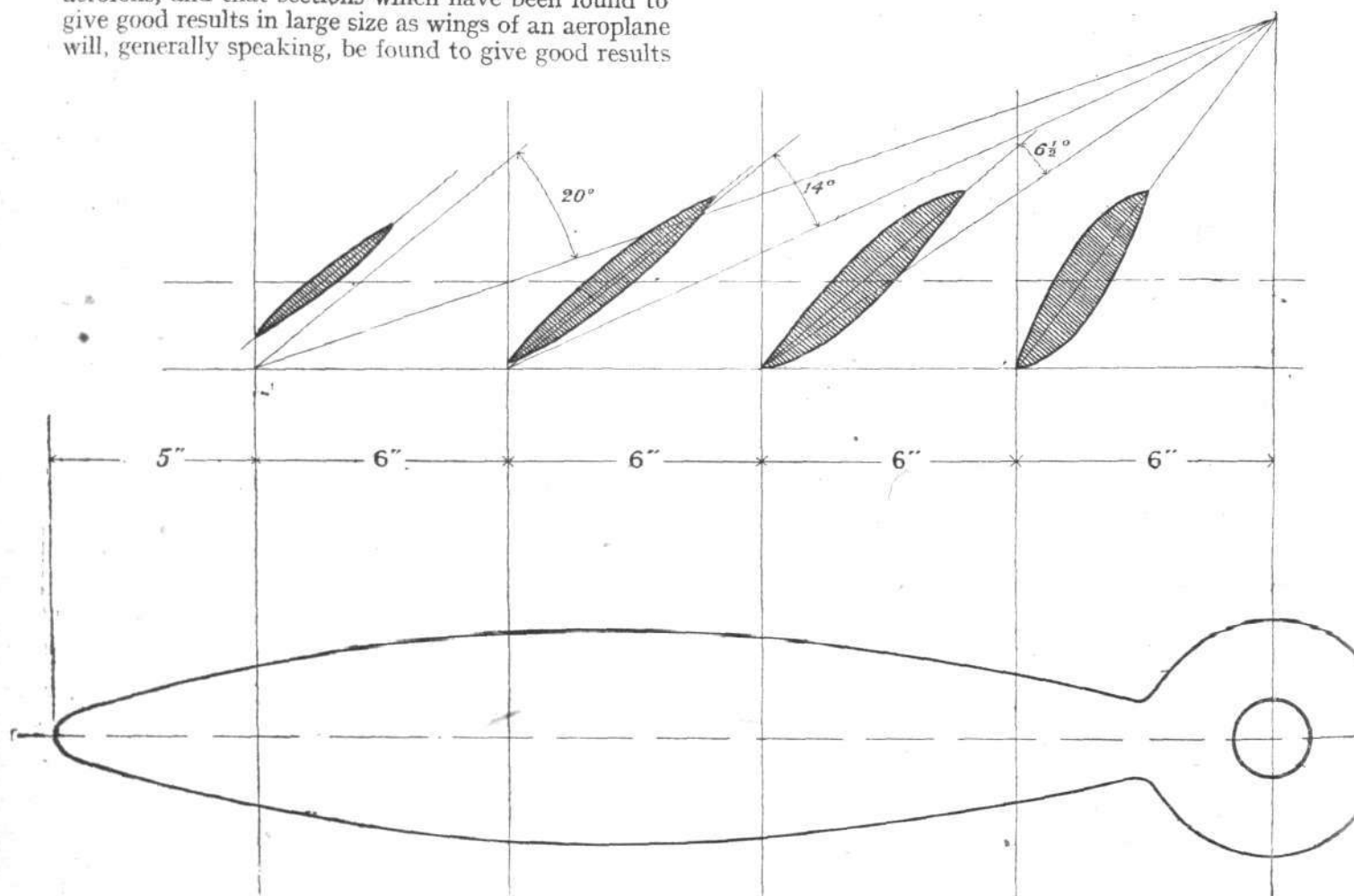
the effect that each element of the screw blade may be considered separately and as behaving in the same manner as if moving through the fluid in a straight line. Applied to the air screw this means, of course, that the elements along the blades are treated as aerofoils, and that sections which have been found to give good results in large size as wings of an aeroplane will, generally speaking, be found to give good results

has a radially expanding pitch in which the chord lines of the various elements are sensibly parallel at all radii. In the other propeller, it will be seen, a more orthodox method has been followed, in that the helix angles diminish in the manner usual in a propeller of uniform pitch, while the angles of attack do not vary greatly from root to tip.

What is most interesting about these propellers, however, is the fact that they are reversible, and

that therefore the sections at various radii from the centre of the propeller boss are totally different from those generally used in air screws.

The peculiarity may, perhaps, be best explained by saying that the blades consist of the upper



Reversible propeller with radially expanding pitch.

on a reduced scale when forming the elements of an air screw. The general characteristics of lift coefficients, drift coefficients and lift/drift ratios are applicable to the elements of the screw—modified, of course, to suit constructional considerations.

For a considerable time now Mr. A. Austin, of

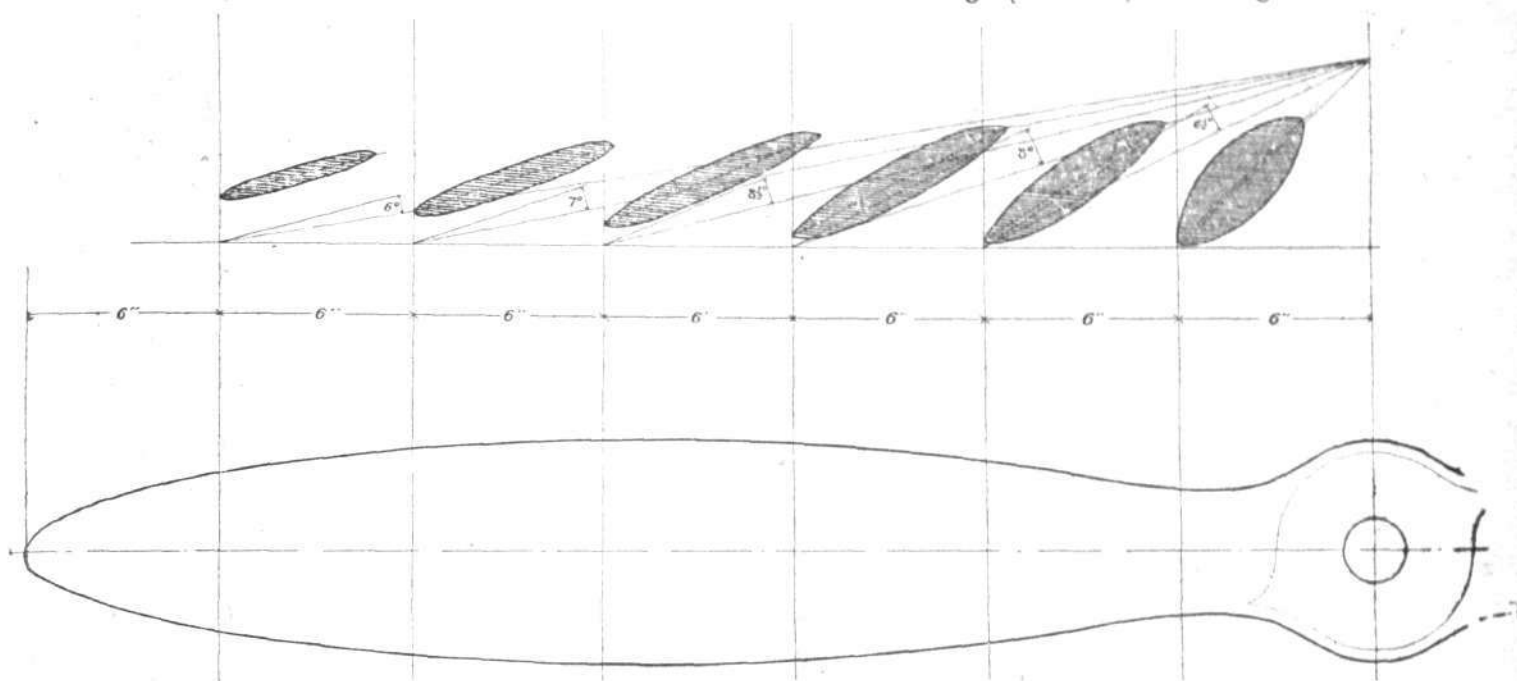
surfaces of an ordinary propeller turned round end to end and with their flat under surfaces together. It is, of course, not to be understood that this simile refers to the construction, which is of the usual laminated type, but merely to the sections. These latter, by the way, are not to be taken as absolutely correct, as Mr.



Austin did not supply us with drawings, and so, in order to get a clear idea of the principle of the propellers, it was necessary to find the angles and sections by placing the propellers on a table, the angles being measured and the projected blade widths found, while the sections were obtained by making templates in plasticine at various radii from the boss.

With regard to the sections the drawings show with

to say until results of model tests are available, but a fair idea may, perhaps, be formed by comparing them with *Aile* No. 56 tested at the Eiffel Laboratory. This section, which was tested for the Deperdussin firm, shows very similar characteristics, except that it has a considerably higher fineness ratio. The Deperdussin section has, according to Eiffel's tests, a maximum lift coefficient of 0.36 (Absolute) at an angle of incidence



Another form of reversible propeller, in which the pitch may be said to be uniform, but the angles of attack vary.

sufficient accuracy the general peculiarities, which are that for the top camber the maximum ordinate is situated from about half-way to quarter of the chord from the leading edge, while in the lower surface the position is reversed, the maximum ordinate being situated from one-half to one-quarter of the chord from the *trailing edge*. Whether this section would be very efficient considered as an aerofoil is impossible

of 15°, while at the more usual angle for a propeller blade, *i.e.*, about 6°, the lift coefficient is 0.16. These values are not very high compared with other aerofoil sections, and it would be interesting to see whether the section would prove more efficient on a screw. The lift/drag ratio of the Deperdussin section mentioned above is about 7.7 at an angle of incidence of 6°, which is not very encouraging.

## SIDE-WINDS.

MR. FRED NORMAN, late of the Scottish Aviation Co., Glasgow, who was the first man to fly a Scottish-built aeroplane—the Caledonia monoplane in 1911—is now, under the name of the National Aircraft Manufacturing Co., Printing House Yard, 15A, Hackney Road, N.E., busily engaged in turning out woodwork for aeroplanes, spars, struts, ribs, &c.

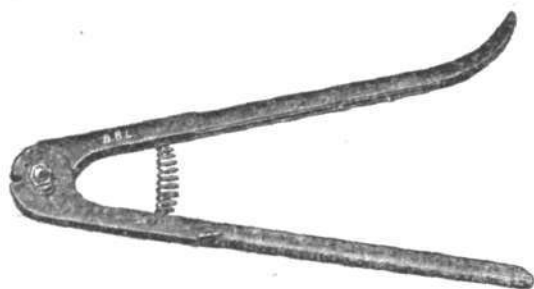
FURNITURE makers are evidently a very enterprising community. This has been apparent from the way in which many of them have given up making dining-room suites in favour of building aeroplanes. Looking in at the fifty-sixth concert of the Furniture and Allied Trades Society at the King's Hall, Holborn Restaurant, on the evening of the Lord Mayor's Show, it seemed that aeroplane building must be an "Allied trade." Many familiar faces were to be seen, including Mr. S. J. Waring, of Waring and Gillow, Ltd., who made a most popular Chairman. The concert was in aid of the Furnishing Benevolent Association, to which Mr. Waring has been such a good friend apart from the £1,000 which he gave by way of a start. The Association is doing splendid work not only at the home at Radlett, but also in assisting those who are fallen on evil days, and up to the last concert the musical society has contributed £288 8s. 7d. to help on the excellent work.

THE concert was a splendid one, and the audience most enthusiastic, which will be understood when it is mentioned

that Mr. A. H. Botwright was the musical director. Songs were contributed by Miss Olive Sturges, Miss Winnie Melville, Miss Winifred Dunk, Mr. Frederick Lake, Mr. Edward Dykes, Mr. Bromley Carter, Mr. Roland Merry; while Miss Dorrie Courtney played banjo solos, and little Miss Fifi Hallam recited. Two unexpected turns were Coram the ventriloquist and his orderly, and Mr. Ernest Hastings, who, by the kindness of Mr. Chas. Gulliver, of the Palladium, were able to spend a few minutes at the concert, and their efforts were greatly appreciated.

ALTHOUGH, of course, the oxy-acetylene welding process of repairing cracks and fractures of cylinders, crankshafts, aluminium castings of all descriptions, &c., is well known to most people, there are many who are not aware that the process can be utilised in other ways. Thus, Imperial Light, Ltd., of 123, Victoria Street, S.W., apart from the great increase in this department of their repair works, also report a good deal of activity in building up worn gears, which are afterwards machined and case-hardened so that they are returned to the owner equal to new in every respect. The constructional department of the works is also engaged extensively on the welding up of aeroplane parts. From their wide experience during the past eight years, the firm are in a position, in most cases, to quote a close price before putting the work in hand.

HAVING had many applications for a really strong wire cutter for aircraft work, Messrs. Brown Brothers, of Great Eastern Street, E.C., who are ever on the look-out for good things for their aircraft department, have taken up the sale of the tool illustrated below. These nippers will cut wires or steel rod up to  $\frac{1}{8}$  in. diam. The action is not a shearing



one, as in the usual form of nipper, but the cutters operate *à la guillotine*, leaving the severed ends clean and square. The cutting surfaces are easily replaceable at a very small cost, whilst the tool being sold at a moderate price it is a good investment, as it should give practically unlimited wear, besides performing its work much more satisfactorily than the old arrangement.

THE merits of Triplex glass are so clear that practically all thoughtful aviators and motorists insist on its use wherever possible. Another splendid testimonial is just to hand from Leeds, where a car was in a bad smash, and the only bit of glass not Triplex—the front of a clock—cut the leg of a lady passenger pretty badly. The owner is now having Triplex fitted to that, and in a letter to the insurance company he says they should insist on Triplex being fitted to all cars or charge extra premium to those that haven't it.

USERS of "Shell I" Motor Spirit have another opportunity of making a little sacrifice for the benefit of the nation, and doubtless no grumbles will be forthcoming, as they will be helping on the good work of the Air Services. Consequent upon the great and growing demands of our air fleet, together with the submarine flotillas, which practically absorb the supplies of Shell I, the proprietors announce that this grade is temporarily withdrawn from sale for pleasure motoring. By way of compensation, increased supplies of Shell II and Crown spirit have been arranged for, so that users will have no difficulty in getting their full supply, even although their favourite grade will be denied them for the present. In cases where petrol gas lighting and other plants have been installed on the understanding of an unfailing supply of the highest grade "Shell," it will still be possible to arrange for the necessary amount.

## NEW COMPANIES REGISTERED.

"NIEUPORT" AND GENERAL AIRCRAFT CO., LTD.—Capital £200,000, in £1 shares. First directors: Sir Inigo Thomas, G.C.B., Geo. C. de Wilde, Henri Kapferer, Gustau de Lage and F. Lane.

SMITH'S STATIC MOTOR, LTD., Caxton House, Westminster, S.W.—Capital £100, in 2s. shares. Aeroplane engine and motor manufacturers, &c., acquiring interests in patents, &c., relating to aeroplane motors or engines. First directors: H. Heenan, T. H. Duffell, A. Smith, C. Schofield and Major Taylor.

STANDARD VALVES, LTD.—Capital £5,000, in £1 shares. Acquiring business of manufacturers of and dealers in valves for aeroplanes, motor cars, &c., carried on at Standard Works, Balmoral Road, Northampton, as the "Valve Syndicate." First directors: D. Barratt and D. H. Gainsford.

S.Y.S. ENGINEERING CO., LTD., LEEDS.—Capital £1,200, in £1 shares (500 6 per cent. cumulative preference), manufacturers of component parts of machinery, aircraft and munitions of war. First directors: A. Yewdall, A. Smith and Major Sheldon.

TRACTION DEVELOPMENT, LTD., Hampden House, Kingsway, W.C.—Capital £30,000, in £1 shares (10,000 7½ per cent. preferred ordinary), manufacturers of locomotives, traction engines, motor cars, aeroplanes and all heavier-than-air flying machines, and fittings for the same, &c.; under agreement with R. F. Macfie and Macfie and Co., Ltd. First directors: F. Macfie and H. F. Smalman-Smith.

## FROM THE BRITISH FLYING GROUNDS. Grahame-White School, Hendon.

STRAIGHTS with instructor last week: Lient. Flynn. Circuits with instructor: Messrs. Balden, Child, Green, Kent, Lord and Robertson. Circuits alone: Messrs. Cockell, Kaizer, Munro, Payne, Sutherland, Travers. Meering, Whiteman, Woods and Zambournis.

Brevets during week: Messrs. Culver, Hitchcock, Norris, Ranson, Rogers and Steeves.

Instructors: Messrs. Manton, Winter, Pashley, Hale and Biard.

## Bournemouth School.

PUPILS with instructor last week: Mr. Ross. Rolling alone: Messrs. Hall, Pete and Fisher. Straights alone: Messrs. Allen and Ross. Half circuits alone: Messrs. Holland and Burry. Circuits and eights alone: Mr. Davies. Instructors: Messrs. E. Brynildsen and H. Smith.

35, 45 and 60 h.p. Caudron biplanes in use.

Certificate was taken by Mr. Davies.

There will be a few vacancies in the school during the week.



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Aircraft of To-day. By Charles G. Turner. London: Seeley, Service and Co., Ltd., 38, Great Russell Street. Price 5s.



## IMPORTS AND EXPORTS, 1915-1916.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures, see "FLIGHT" for January 25th, 1912; for 1912 and 1913, see "FLIGHT" for January 17th, 1914; for 1914, see "FLIGHT" for January 15th, 1915; and for 1915, see "FLIGHT" for January 13th, 1916:—

	Imports.		Exports.		Re-Exportation.	
	1915.	1916.	1915.	1916.	1915.	1916.
January ...	20,382	1,509	435	6,399	13,706	—
February ...	380	6,444	138	30,693	18,823	—
March ...	280	3,388	7,218	17,872	5,090	7
April ...	2,189	3,383	23,986	22,608	275	3,783
May ...	178	1,986	12,530	26,165	8,250	300
June ...	5,469	4,986	3,730	59,287	2,400	—
July ...	1,240	2,072	13,372	12,932	—	—
August ...	664	2,583	36,276	13,555	247	420
September ...	536	1,076	4,908	36,048	—	—
October ...	1,344	952	17,702	9,289	—	8
	32,662	28,379	120,295	225,848	48,791	4,518

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